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United States
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Tongass National Forest

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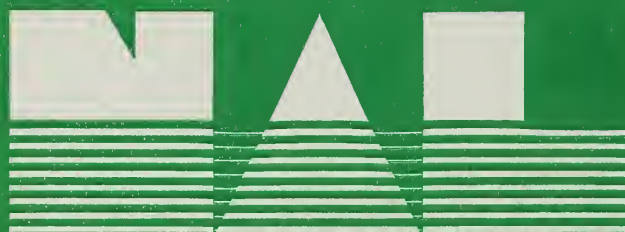


Emerald Bay Timber Sale

Final Supplemental Environmental Impact Statement and Record of Decision



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File Code: 1950

Date: September 30, 2005

Dear Planning Participant:

Here is your copy of the Final Supplemental Environmental Impact Statement (Final SEIS) and Record of Decision (ROD) for the Emerald Bay Timber Sale on the Ketchikan-Misty Fiords Ranger District, Tongass National Forest.

The Emerald Bay Timber Sale Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) were published in October 2001. On February 14, 2002, the Tongass Forest Supervisor's decision was reversed on appeal to the Regional Forester because the FEIS did not adequately consider the potential effects of the project on roadless area values and wilderness characteristics. The Draft SEIS and Final SEIS include more detail on the potential effects of the project alternatives on these resources.

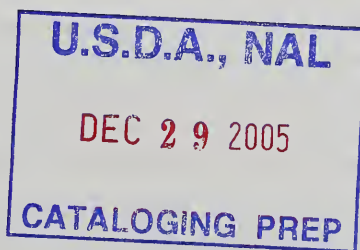
The ROD explains my decision to select Alternative B and the factors considered in reaching this decision. The effective date of implementation and the Notice of Rights of Appeal are also specified in the ROD.

Copies of this Final SEIS and Record of Decision are available for review at Forest Service offices throughout the Tongass. For more information, contact the Ketchikan-Misty Fiords Ranger District at 907-225-2148.

I want to thank those of you who took the time to review and comment on the Draft Supplemental Environmental Impact Statement. Your interest in the management of the Tongass National Forest is appreciated.

Sincerely,

FORREST COLE
Forest Supervisor



DEC 07 2005



Emerald Bay Timber Sale

Final Supplemental Environmental Impact Statement and Record of Decision

United States Department of Agriculture
Forest Service Alaska Region

Lead Agency: USDA Forest Service
Tongass National Forest

Responsible Official: Forest Supervisor
Tongass National Forest
Ketchikan, Alaska 99901

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Abstract

The USDA Forest Service analyzed timber harvest alternatives ranging from no harvest to approximately 32,749 CCF (16,373 MBF) (CCF = hundred cubic feet; MBF = thousand board feet) of timber in the Emerald Bay project area, Ketchikan-Misty Fiords Ranger District, Tongass National Forest. The Emerald Bay project area is on the west side of the Cleveland Peninsula. Timber volume from this project would be sold in one sale. The actions analyzed in this Final Supplemental Environmental Impact Statement (Final SEIS) are designed to implement direction contained in the Tongass Land and Resource Management Plan (Forest Plan).

The Emerald Bay Timber Sale Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) were published in October 2001. On February 14, 2002, the Tongass Forest Supervisor's decision was reversed on appeal to the Regional Forester because the FEIS did not adequately consider the potential effects of the project on roadless area values and wilderness characteristics. The availability of the Draft SEIS was published in the *Federal Register* on October 15, 2004 and included more detail on the potential effects of the project alternatives on these resources.

The Final SEIS describes four alternatives, which provide different combinations of resource outputs and spatial locations of harvest units. Alternatives B and D propose roading through a Medium Old-growth Reserve (MOGR) and construction of a log transfer facility. The alternatives include: A) No Action, proposing no harvest or road construction in the project area at this time; B) maximizing the contribution to the timber products industry through application of predominantly even-aged management and construction of 5.8 miles of new classified road and 0.4 mile of temporary road; C) minimizing impacts to a Medium Old-growth Habitat Reserve through uneven-aged management and 100 percent helicopter yarding; no roads would be constructed; D) balancing timber economics and resource protection through use of uneven-aged management and 3.8 miles of new road. Roads in Alternatives B and D would be constructed to minimize impacts. Roads and the log transfer facility would be closed upon completion of the timber sale.

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Decision

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Record of Decision

Record of Decision

Emerald Bay Timber Sale

Forest Service, USDA
Ketchikan-Misty Fiords Ranger District
Tongass National Forest
Alaska Region

Introduction

The 7,845-acre Emerald Bay project area is located approximately 40 air miles north of Ketchikan, Alaska (see Figure 1-1 in Chapter 1 of the Final SEIS). It is located on the Cleveland Peninsula in the Emerald Creek and Wasta Creek watersheds. Access to the area is by small plane originating in Ketchikan or Wrangell or by boat through Ernest Sound.

Decision

I have chosen Alternative B as the Selected Alternative from the Emerald Bay Timber Sale Supplemental Environmental Impact Statement. My decision will modify the alignment of the first segment of road #8645900-1 which begins at the log transfer facility and is partly located in the estuary fringe. The road will be realigned during layout to avoid the estuary buffer to the extent feasible. This new alignment will also move the road segment farther away from the eagle nest buffer. The Appendix 2 road card shows the segment of road that will be realigned.

I authorize the actions necessary to implement my decision. The Selected Alternative with road realignment achieves Forest Plan goals for the Emerald Bay Timber Production Land Use Designation (LUD), while considering effects to other resources.

A medium old-growth reserve (OGR) lies between the timber sale and Ernest Sound. I determined that the selected road and log transfer facilities (LTF) are the most efficient and economical of six possible routes evaluated. The Forest Plan allows for road construction in Old-growth Habitat LUDs when no other feasible route is possible.

The road is designed to minimize effects to the environment. Road width will be 14 feet, with a clearing width up to 55 feet, and the surface will be outsloped, eliminating the need for ditches and reducing sedimentation in streams. Log-stringer bridges will be used to cross Class I, II, and III streams. Culverts will drain Class IV streams. A road closure will be in effect during and after timber harvest to prevent public travel by motorized vehicle, and log-stringer bridges and culverts will be removed after harvest. Removal of the LTF will further discourage road use.

This decision is based on the environmental analysis in the SEIS, agency, governmental, tribal, and public comments received. This decision meets the Purpose and Need for the project, is consistent with the Tongass Land and Resource Management Plan Record of Decision, and is responsive to the issues identified.

Description of the Selected Alternative

1. The Selected Alternative will harvest approximately 601 acres of commercial forest land to contribute to the Tongass National Forest timber sale program. This harvest provides approximately 16.4 million board feet (MMBF) of sawlog and utility volume. Design features of approved harvest units are described in detail on the Unit Cards in Appendix 1 of the ROD.
2. The Selected Alternative has deferred harvest on 29 acres of Unit 10 pending occupancy surveys on one red-tailed hawk nest. Occupancy surveys will be conducted until either 1) the nest remains unoccupied for 2 consecutive years, at which time harvest may occur, or 2) the timber sale contract is concluded.
3. The Selected Alternative includes both even-aged and uneven-aged silvicultural systems. This meets the standards and guidelines for a Timber Production LUD, and meets the project Purpose and Need by providing timber for market demand. The even-aged, clearcut prescriptions address the issue to provide for efficient harvest operations and sound management of stands for future growth of sawtimber volume of desirable species. The uneven-aged silvicultural system addresses the roadless issue by retaining a forested appearance on all acres not accessible by road. The Unit Cards in Appendix 1 of the ROD provide specific direction for field layout to accomplish these objectives.
4. The Selected Alternative includes construction of 5.8 miles of classified road and 0.4 mile of temporary road. The system road crosses 2.2 miles of a medium OGR. All roads will be closed to public motorized vehicles during timber sale operations and put in storage after harvest activities.
5. The Selected Alternative includes the construction of one land-to-barge LTF at Emerald Bay. The LTF is located within a 330-foot buffer for an active bald eagle nest; which is established through a Memorandum of Understanding with the U.S. Fish and Wildlife Service. The Forest Service received September 9, 2005 a variance to the Memorandum of Understanding (Appendix 3 of the ROD). Road and LTF construction will be allowed within the eagle nest buffer. However, to avoid disturbing bald eagles during courtship and nesting, all construction activities will be restricted from March 1 through August 31.
6. The road, LTF, sortyard, camp, and rock pits will physically alter about 23 acres of the 11,530-acre medium OGR. The OGR will still meet Forest Plan Standards and Guidelines for a medium OGR.
7. Streams will receive buffers that meet standards and guidelines specified by the Forest Plan Riparian Process Group (Forest Plan, page 4-53). Additional windfirm buffers will be added where appropriate.
8. The effects of the Selected Alternative on the subsistence resources are minimal. The direct, indirect, and cumulative effects do not present a significant possibility of a significant restriction of subsistence resources.
9. This decision identifies mitigation measures to reduce or eliminate adverse environmental effects of the timber harvest and road construction activities specified in the Selected Alternative.

Reasons for the Decision

In making my decision, I considered the issues and concerns raised during scoping, comments on the Draft EIS and Draft SEIS, appeals and the reversal of the 2001 ROD. I considered Forest Plan direction relevant to this project and the competing interests and values of the public. I considered all viewpoints and incorporated them where feasible and consistent with the Purpose and Need of the project. I carefully considered the comments of those opposing this project and the issues identified.

I evaluated the trade-off between resource protection, social values, and timber sale economics. Alternative B provides a beneficial mix of resources for the public, within a framework of existing laws, regulations, policies, public needs and desires, and the capabilities of the land, while meeting the stated Purpose and Need for this project. My decision to implement Alternative B conforms to the Forest Plan and national forest management.

I considered the need to manage this timber resource in order to produce saw timber and other wood products on a sustained yield and economical basis. The Selected Alternative implements Forest Plan direction for Timber Production LUDs and the project design is economical. Alternative B has a positive timber sale value in the 1st quarter of 2004, and a positive value for 11 of the 12 quarters in the economic analysis period.

I considered the need to help provide an even flow of timber to meet annual and Forest Plan planning cycle market demand. The Selected Alternative provides about 16 MMBF toward meeting annual market demand.

I considered the need to provide diverse opportunities for natural resource employment and to contribute to local and regional economies. The Selected Alternative estimates 86 job years of employment opportunities and 16 MMBF of wood products are generated to support local and regional economies.

I considered the need to minimize disturbance in Old-growth Habitat LUDs while still meeting the goals, objectives, and desired condition of the Timber Production LUD in an economical manner. The interdisciplinary team (IDT) analyzed the feasibility of using helicopters to eliminate the need for road construction. Declining market values since 1998 made harvest by helicopter an uneconomical option. The Forest Plan allows road building in Old-growth Habitat LUDs if no other feasible means of access exists.

The IDT analyzed five alternate routes to access the project area. The alternate routes required two to three times more road miles at much greater cost, and were determined infeasible due to cost and environmental effects. Four of the alternate road routes also required road construction in Old-growth Habitat LUDs. The three routes leading north to either Sunny Bay or Frost Bay required road construction over steep, rugged terrain. I determined that the road proposed in the Selected Alternative is the most feasible way to access the Timber Harvest LUD.

I considered the effects to Cleveland Roadless Area #528 values and the wilderness characteristics associated with Cleveland Peninsula. The Selected Alternative affects 1.5 percent (2,878 acres) of Cleveland Roadless Area #528 (191,477 acres). Most of the roadless area will retain its identified values (outstanding saltwater fishing in the major bays, opportunity for solitude and primitive recreation, and unmodified natural appearance.) After harvest, the road will be put in storage and allowed to revegetate. The LTF will be removed following harvest.

The Selected Alternative builds 5.8 miles of low-impact classified road and 0.4 mile of temporary road. Road construction standards will minimize effects by limiting road surface width to 14 feet and road-clearing width to 55 feet, and using log-stringer bridges at Class I, II, and III stream crossings, and outsloping the road for runoff. A road closure will be in effect during and after timber harvest to prevent public travel by motorized vehicle.

Record of Decision

On August 5, 2005, the Ninth Circuit Court of Appeals ruled that a misinterpretation of the Brooks and Haynes 1997 draft timber demand projections rendered the 1997 Record of Decision for the Tongass Land Management Plan Revision arbitrary and capricious. The court of appeals remanded the matter for further proceedings consistent with the court's opinion. *Natural Resources Defense Council v. U.S. Forest Service*. The process of remedying the defects identified by the court of appeals will be time-consuming. Delaying the completion of this and other site-specific projects should be avoided because it would result in substantially undermining the Forest Service's ability to respond to timber demand.

Public Involvement

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the key issues related to a Proposed Action" (in Code of Federal Regulations 40 CFR 1501.7). The scoping process was used to invite public participation and collect initial comments.

Notice of Intent (NOI)

A Notice of Intent was published August 17, 1998 in the *Federal Register* when it was decided that an EIS was to be completed for the project.

Public Mailing

In early August 1998, a letter providing information and seeking public comment (scoping document) was mailed to 140 individuals and groups that had previously shown interest in Forest Service projects in Southeast Alaska. The mailing included seven Federal agencies, five State agencies and divisions, 22 Native and municipal offices, and 106 businesses and other organizations, groups, and individual citizens. There were 28 responses to this initial mailing.

Local News Media

Legal announcements about the project were published in the August 15-16, 1998 weekend edition of the *Ketchikan Daily News* and the August 13, 1998 edition of the *Wrangell Sentinel*. A display advertisement with map, describing the project, was published in the August 15-16, 1998, weekend edition of the *Ketchikan Daily News*.

Public Meetings

A public meeting was held at the Narrows Inn in Ketchikan on August 24, 1998 to provide information and discuss potential areas of concern to be addressed in the project analysis.

Consultation with Tribal Governments

Government-to-government consultations with federally recognized tribal governments and meetings with traditional tribal governments took place in 1998, 2004 and 2005. Meetings included: Wrangell Cooperative Association, Organized Village of Saxman, Metlakatla Indian Community, and Ketchikan Indian Community. Tribal concerns were considered in the environmental analysis. Tribal consultation does not imply that the tribes endorse the Proposed Action or any of the alternatives.

Draft EIS 2000

Availability of Draft EIS for Public Comment

Availability of the Draft EIS was announced on January 28, 2000, both in the *Federal Register* and through legal notices published February 7, 2000 in the *Ketchikan Daily News* and February 10, 2000 in the *Wrangell Sentinel*. The 45-day public comment period started January 28, 2000 and was extended to April 15, 2000. The Draft EIS was mailed to Federal and State agencies, Native and municipal offices, and others who requested it.

Public Information Meeting

In response to public comment, a public meeting was held on March 2, 2000 to introduce a fourth alternative, Alternative D, which combined elements of Alternatives B and C.

Project Update Letter, March 20, 2000

A project update letter was sent to those on the Draft EIS mailing list on March 20, 2000 incorporating comments from the public meeting and detailing Alternative D. In order to allow adequate time for comments, this letter extended the comment period on the Draft EIS to May 5, 2000 for a total of 98 days.

Analysis and Incorporation of Public Comment on the Draft EIS

Twenty-two agencies, organizations, and individuals submitted written comments on the Draft EIS. The IDT analyzed and incorporated these comments into the Final EIS. Public comments and responses to the comments were included in Appendix D of the Final EIS.

Some comments expressed concern about road building and timber harvest in Cleveland Roadless Area #528. They thought the roadless nature of the Cleveland Peninsula should be retained. They referenced a letter from the Governor of Alaska corroborating that statement. Others were concerned that a precedent would be set by proposing to build a road through a medium old-growth reserve. They cited possible effects to fish and wildlife resources and wondered what allowances would be made. These comments are the roadless and OGR issue and are discussed in Chapter 2 of the Final EIS.

Some comments expressed concern over the economic viability of proposing uneven-aged management prescriptions in an isolated Timber Production LUD. They also questioned whether these prescriptions would meet the objectives of the LUD and the Purpose and Need for the project. These comments are the timber economics issue discussed in Chapter 2 of the Final EIS.

The IDT evaluated and responded to these comments (Appendix D of the Final EIS). Final EIS Chapters 2 and 3 summarize the analysis of effects to roadless values, the medium old-growth reserve, and timber economics.

Final EIS and Record of Decision 2001**Final EIS and Record of Decision**

Forest Supervisor Thomas Puchlerz signed the Emerald Bay Timber Sale Record of Decision on September 13, 2001. Alternative D was the Selected Alternative. The Notice of Availability of the Final Environmental Impact Statement was published November 2, 2001 in the *Federal Register*. The legal notice was published November 2, 2001 in the *Juneau Empire*, the *Ketchikan Daily News*, and the *Wrangell Sentinel*. A corrected legal notice was published in the three newspapers on November 16, 2001, restarting the 45-day appeal period, which ended December 31, 2001.

Appeal of the Record of Decision

The Tongass Forest Supervisor's decision was reversed on appeal to the Regional Forester because the EIS did not adequately consider the potential effects of the project on roadless area values and wilderness characteristics.

Project Update 2002**Public Scoping – Project Update Letter, October 2002**

A project update letter was mailed October 2002 to the EIS mailing list. It announced the preparation of the Supplemental EIS (SEIS). The letter requested comments on the preparation of the SEIS. Fourteen agencies, organizations, and individuals submitted comments.

Draft SEIS 2004**Availability of the Draft SEIS for Public Comment**

Availability of the Draft SEIS was announced October 15, 2004 in the *Federal Register*. This announcement started a public comment period ending November 29, 2004. The Draft SEIS mailed to Federal and State agencies, tribal governments, municipal offices, organizations, and individuals.

An article regarding the project was published in the October 12, 2004 edition of the *Ketchikan Daily News*.

Comments on the Draft SEIS

Fifty-two agencies, organizations, and individuals submitted written comments on the Draft SEIS. Comment in an email form letter was received from 40,000 respondents. The interdisciplinary team analyzed and responded to the comments. These comments and responses are included in Appendix D.

Subsistence Hearings

Two evening subsistence hearings were held for the Emerald Bay project:

October 25, 2004 at the Ketchikan-Misty Fiords Ranger District; the hearing included call-in testimony to allow Meyers Chuck residents to participate. One person attended and testified at the hearing.

October 27, 2004 Nolan Museum, Wrangell, AK. No one attended the meeting.

Final SEIS 2005

Publication of the Final SEIS

The Notice of Availability of the Final SEIS and Record of Decision (ROD) has been published in the *Federal Register*. Legal notices have been run in the *Juneau Empire*, the newspaper of record, and in the *Ketchikan Daily News* and *Wrangell Sentinel*. The legal notice of availability published in the *Juneau Empire* initiates a 45-day appeal period (36 CFR 215), during which the project cannot be implemented. Copies of the Final SEIS and ROD have been mailed to Federal and State agencies, tribal governments, municipal offices, and to those who requested them or responded to the Draft SEIS. An e-mail was sent to those who submitted electronic form letters in response to the Draft SEIS providing notice of the availability of the ROD on the internet at <http://www.fs.fed.us/r10/tongass/projects/decisions/rodecn/05emeraldbay.shtml>. The Final SEIS is also available at the Ketchikan-Misty Fiords Ranger District Office.

Coordination with Other Agencies

From the time scoping was initiated, meetings and site visits with interested State and Federal agencies have occurred. Issues were discussed and information was exchanged.

An interagency team of biologists representing the U.S. Fish and Wildlife Service (USFWS), Alaska Department of Fish and Game (ADF&G), and the Forest Service reviewed small old-growth reserves for location and function in the project area. The team did not recommend any changes to the adjacent small old-growth reserves. The USFWS and Forest Service conducted a site visit of the LTF and proposed road sites in early June 2000.

On March 18, 2004 Forrest Cole, representing the Tongass National Forest met with Bruce Halstead of the U.S. Fish and Wildlife Service (USFWS) and the Ketchikan-Misty Ranger District staff. The purpose of the meeting was to address USFWS concerns about road building in the medium old-growth reserve, the LTF construction, eagle nests, other wildlife species concerns, and alternative silvicultural methods. The Forest Service reviewed potential routes that would avoid the old-growth reserve. Analysis and field reconnaissance was conducted in June of 2005. These alternate routes are discussed in the Final SEIS, Chapter 3, Transportation section.

A Biological Assessment was prepared and sent to the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service as part of the Section 7 consultation under the Endangered Species Act. USFWS concurred with the findings August 8, 2005. NMFS concurred with the findings September 6, 2005.

To comply with the essential fish habitat (EFH) agreement, the Forest Service contacted NMFS on October 17, 2003 to explain the situation regarding the Emerald Bay Timber Sale appeal process. A revised EFH assessment was sent to NMFS and they concurred with the findings December 18, 2003.

Coordination with the State of Alaska included the Division of Governmental Coordination, the Department of Fish and Game, and the Department of Environmental Conservation. The Forest Service determined that implementation of the Emerald Bay project will affect the coastal zone. Based on the analysis in the Final SEIS, review of the Forest Practices Act, and comments from State agencies on the Draft SEIS, the Forest Service determined that the Emerald Bay project is consistent to the maximum extent practicable with the enforceable policies of the Alaska Coastal Management Program. The State concurred with this consistency finding in November 2004.

The State Historic Preservation Officer has been consulted, in accordance with Section 106 of the National Historic Preservation Act (NHPA) and CFR Part 800. Native communities have been contacted and public comment encouraged. The Forest Service has satisfied the consultation process with the State Historic Preservation Officer (SHPO). The SHPO concurs that no effects to heritage resources are anticipated.

The SEIS identifies the agencies that were informed of and/or involved in the planning process (see Distribution List in Chapter 4).

Alternatives Considered

Four alternatives were considered in detail. Other alternatives were considered in an effort to reduce effects of road and LTF construction in the OGR while maintaining economic viability. These efforts are described in Chapter 2 of the Final SEIS. The Final SEIS analyzed the following alternatives:

Alternative A - No Action, proposes no new timber harvest or road construction in the Emerald Bay project area at this time. It does not preclude timber harvest from other areas at this time or from the project area at some time in the future. Council on Environmental Quality (CEQ) regulations require that a “No Action” alternative be analyzed in every EIS (40 CFR 1502.14(d)). This alternative represents the existing condition. It serves as a baseline for comparing the alternatives.

Alternative B – Selected Alternative proposes to harvest 601 acres producing 32,749 CCF (16,373 MBF) of timber. Alternative B includes clearcutting (even-aged management) and single-tree selection (uneven-aged) harvest methods. New road construction totals 6.2 miles - 5.8 miles of classified road and 0.4 mile of temporary road with 2.2 miles of road crossing a medium Old-growth Habitat Reserve.

Log-stringer bridges would be used to cross Class I, II, and III streams. Culverts would drain Class IV streams. Road construction could include three 1-acre rock pits. Two of these rock pits could be in the medium Old-growth Habitat Reserve. This alternative would construct a land-to-barge log transfer facility (LTF) at Emerald Bay.

Alternative C – Proposed Action proposes to harvest 620 acres by helicopter producing 24,359 CCF (12,179 MBF) of timber. Alternative C uses uneven-aged selection harvest. No log transfer facilities or sort yard are proposed for Alternative C. The logs from the units would be placed directly on barges. This alternative would not include road construction, LTF, or a land camp.

Alternative D would harvest 620 acres producing 24,783 CCF (12,391 MBF) of timber. Alternative D uses the uneven-aged selection harvest methods prescribed for Alternative C. This alternative proposes to build 3.8 miles of low-impact classified road (2.2 miles through the medium Old-growth Habitat Reserve). This road would shorten the helicopter-yarding distance, and decrease the logging cost and increase net stumpage value.

Log-stringer bridges would be used to cross Class I, II, and III streams. Culverts would drain Class IV streams. Road construction could include three 1-acre rock pits. Two of these rock

pits could be in the medium Old-growth Habitat Reserve. This alternative would construct a land-to-barge log transfer facility (LTF) at Emerald Bay.

Environmentally Preferred Alternative

Implementation of Alternative A, the No-action Alternative, would result in no environmental disturbance and is therefore the environmentally preferred alternative. This is based on the comparison of all the alternatives shown in Table 2-5, Chapter 2, Final SEIS.

All alternatives considered in detail have varying levels of environmental effects depending upon the emphasis of the alternative. Alternative C is the most environmentally preferred of the action alternatives. It would cause the least adverse environmental effects because it proposes 100 percent helicopter yarding of uneven-aged prescriptions with no road building.

Mitigations

The analysis documented in the SEIS discloses the possible adverse effects that may occur from implementing the actions proposed under each alternative. Measures were formulated to mitigate or reduce these effects. Project-specific mitigation measures are listed below and on the unit and road cards (Appendices 1 and 2 of the ROD).

Old Growth

Since new road construction is generally inconsistent with Old-growth Habitat LUD management, road use is limited to logging traffic only. No public motorized use of the road would be allowed during or after timber harvest. Upon completion of the timber sale, the roads would be put into storage and closed to all motorized use.

LTF and Scenery

The LTF and operating site would be removed after harvest operations are completed in Alternatives B and D. The rock fill would be spread on the operating area.

A road leading to the LTF would also be built in Alternatives B and D. The potential visual impact of the road accessing the LTF would be mitigated by aligning it to be screened by a buffer of trees, and paralleling slope contours as much as possible to avoid leaving a visible notch created by the right-of-way (ROW) clearing. This would reduce the impact and this segment of road would meet the visual quality objective of Retention.

Threatened, Endangered, and Sensitive Species

To prevent disturbance to sea lions (agreement with NMFS 12/18/2000), project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout on Easterly Island. Floating camps and helicopter to barge operations (Alternative C) would be required to maintain a 1-mile distance. Project-associated aircraft would be required to remain at least 0.5 mile horizontal and 1,500 feet vertical distance from the haulout.

Log transfer facilities (LTFs) will be kept clear of dangling cables, ropes, and other materials that could entrap humpback whales (NMFS letter 10/30/2000). Consistent with the Marine Mammal Protection Act, project-associated boats and barges in transit are required to remain at least 100 yards from humpback whales.

Wildlife

An occupied red-tailed hawk nest was found in the northern portion of Unit 10. Applicable standards and guidelines (600-foot windfirm buffer) will be applied as long as the nest remains occupied. Activities that would disturb red-tailed hawks would be restricted during the active nesting season (generally March 1st to July 31st).

Monitoring

Monitoring activities can be divided into three broad categories: Forest Plan monitoring, routine implementation monitoring, and project-specific effectiveness monitoring. The National Forest Management Act requires that national forests monitor and evaluate their Forest Plans (36 CFR 219.11). The Forest Plan (Chapter 6) includes the monitoring and evaluation activities conducted as part of Forest Plan implementation.

Tongass National Forest staff and representatives from other Federal and State agencies annually conduct an interdisciplinary review of BMP implementation and effectiveness. The results of this and other monitoring are summarized in the Tongass National Forest Annual Monitoring and Evaluation Report. This report provides information about how well the management direction of the Forest is being carried out and measures the accomplishment of anticipated outputs, activities and effects.

Routine implementation monitoring assesses whether a project was implemented as designed and whether or not it complies with the Forest Plan. The unit and road cards are the basis for determining whether recommendations were implemented for various aspects of the project. Routine implementation monitoring is part of timber sale contract administration. Certified sale administrators and road inspectors ensure that the prescriptions contained on the unit and road cards are incorporated into contract documents and monitor performance relative to contract requirements. Input by resource staff specialists, such as fisheries biologists, soil scientists, silviculturists, hydrologists and engineers, is regularly requested during this implementation monitoring process. These specialists provide technical advice when questions arise during project implementation.

Project-specific effectiveness monitoring seeks answers about the effectiveness of design features or mitigation measures in protecting natural resources and their beneficial uses. Road use during and following harvest would be monitored to determine whether closure features are sufficient to preclude motorized access. Harvest units would be monitored 3 years after harvest to determine if regeneration is successful.

Fisheries

Salmonid monitoring that was established July 2001 in Birch Creek sub-basin will continue after timber harvest is complete.

Heritage

Post-construction monitoring of a sample of roads and units would be implemented to further evaluate the sensitivity model.

Marine Environment

Annual dives and dive reports will be prepared while the LTF is in operation. The LTF will be removed after harvest is complete.

Silviculture

Post-harvest activities will include regeneration surveys as well as evaluation of residual stands.

Transportation

Road use during and following harvest will be monitored to determine whether closure measures are sufficient to preclude all motorized use.

Wildlife

Occupancy surveys for the red-tailed hawk nest will be conducted annually.

Bald eagle nests will be monitored for effects throughout the duration of the timber sale.

Findings Required By Law

Several of the laws and Executive Orders listed in Chapter 1 of the Final SEIS require project-specific findings or other disclosures. They apply to all alternatives considered in detail.

Alaska National Interest Lands Conservation Act (ANILCA) of 1980; Section 810

Subsistence Evaluation and Findings: A subsistence evaluation was conducted for the four alternatives considered in detail for the Emerald Bay Final SEIS, in accordance with Alaska National Interest Lands Conservation Act (ANILCA) Section 810. ANILCA 810 subsistence hearings were conducted during the comment period for the Draft SEIS. The hearing transcripts are published as Appendix C of the Final SEIS.

This evaluation indicates that the potential foreseeable effects from the alternatives in the Emerald Bay project area do not indicate a significant possibility of a significant restriction of subsistence uses for deer, bear, furbearers, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods such as berries and roots. See Chapter 3, Subsistence section, in the Final SEIS.

Bald Eagle Protection Act

Management activities within 330 feet of an eagle nest site are restricted by an Interagency Agreement between the Forest Service and the U.S. Fish and Wildlife Service (USFWS) to facilitate compliance with the Bald Eagle Protection Act. The Selected Alternative includes road and LTF construction within 330 feet of a known bald eagle nest.

The Forest Service and U.S. Fish and Wildlife Service (USFWS) re-authorized the Bald Eagle Memorandum of Understanding (#02MU-111001-018.) on February 26, 2002. The agreement specifies seasonal restrictions to comply with the Bald Eagle Protection Act. All bald eagle nests are considered active from March 1 to May 15. Active nests have seasonal restrictions from March 1 to August 31. The nests appeared unused in 2001, but were active in 2005. Surveys were not conducted in the intervening years. The Forest Service received a variance from the USFWS that will allow construction activities in the 330-foot nest buffer, except between March 1 and August 31.

Cave Resource Protection Act of 1988

There are no known occurrences of carbonate rock and associated cave resources in the project area. Field reconnaissance identified no areas of concern within the project area.

Clean Air Act of 1970 (as amended)

Emissions from the implementation of any project alternative will be of short duration and are not expected to exceed State of Alaska ambient air quality standards (18 AAC 50).

Clean Water Act (1977, as amended)

Congress intended the Clean Water Act of 1972 (Public Law 92-500) as amended in 1977 (Public Law 95-217) and 1987 (Public Law 100-4) to protect and improve the quality of water resources and maintain their beneficial uses. Section 313 of the Clean Water Act and Executive Order 12088 of January 23, 1987 addresses Federal agency compliance and consistency with water pollution control mandates. Agencies must be consistent with requirements that apply to "any governmental entity" or private person. Compliance is to be in line with "all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution."

The Clean Water Act (Sections 208 and 319) recognized the need for control strategies for nonpoint source pollution. The National Nonpoint Source Policy (December 12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), and the USDA Nonpoint Source Water Quality Policy (December 5, 1986) provide a protection and improvement emphasis for soil and water resources and water-related beneficial uses. Soil and water conservation practices (Best Management Practices) were recognized as the primary control mechanisms for nonpoint source pollution on National Forest System lands. The Environmental Protection Agency

supports this perspective in their guidance, "Nonpoint Source Controls and Water Quality Standards" (August 19, 1987).

The Forest Service must apply Best Management Practices (BMPs) that are consistent with the Alaska Forest Resources and Practices Regulations to achieve Alaska Water Quality Standards. The site-specific application of BMPs, with a monitoring and feedback mechanism, is the approved strategy for controlling nonpoint source pollution as defined by Alaska's Nonpoint Source Pollution Control Strategy (October 2000). In 1997, the State approved the BMPs in the Forest Service's Soil and Water Conservation Handbook (FSH Handbook 2509.22, October 1996) as consistent with the Alaska Forest Resources and Practices Regulations. This Handbook is incorporated into the Tongass Land and Resource Management Plan.

A discharge of dredge or fill material from normal silviculture activities such as harvesting for the production of forest products is exempt from Section 404 permitting requirements in waters of the United States, including wetlands (404(f)(1)(A)). Forest roads qualify for this exemption only if they are constructed and maintained in accordance with BMPs to assure that flow and circulation patterns and chemical and biological characteristics of the waters are not impaired (404(f)(1)(E)). The BMPs that must be followed are specified in 33 CFR 323.4(a). These specific BMPs have been incorporated into the Forest Service's Soil and Water Conservation Handbook under BMP 12.5.

The design of harvest units for the Selected Alternative were guided by standards, guidelines and direction contained in the Forest Plan, and applicable Forest Service Manuals and Handbooks. The unit cards and road cards (Appendices 1 and 2 of the ROD) contain specific details on practices prescribed to prevent or reduce nonpoint sediment sources.

Monitoring and evaluation of the implementation and effectiveness of Forest Plan Standards and Guidelines and Best Management Practices will occur. Project activities are expected to meet all applicable State of Alaska Water Quality Standards Regulations.

Coastal Zone Management Act (CZMA) of 1972 (as amended)

The Coastal Zone Management Act of 1972, as amended, while specifically excluding Federal lands from the coastal zone, requires that Federal agency activities be consistent with the enforceable policies of the State coastal management program to the maximum extent practicable when the activities affect the coastal zone. The Forest Service makes this determination.

The Alaska Coastal Management Program incorporated the Alaska Forest Resources and Practices Act (Forest Practices Act) of 1979 as the applied Standards and Guidelines for timber harvesting and processing. The Forest Service Standards and Guidelines, BMPs, and mitigation measures described in the Emerald Bay SEIS meet or exceed the level of protection provided by the enforceable policies of the Forest Practices Act.

Based on the analysis in the SEIS, review of the Forest Practices Act, and comments from State agencies on the Draft SEIS, the Forest Service determined that the project is consistent to the maximum extent practicable with the enforceable policies of the Alaska Coastal Management Program. The State concurred with this consistency finding in November 2004.

Consumers, Civil Rights, Minorities and Women

No negative effects to the civil rights of individuals or groups, including minorities and women, are anticipated to be associated with this project. Additional information can be found in the Forest Plan FEIS Chapter 3 and Appendix H.

Endangered Species Act (ESA) of 1973 (as amended)

Actions authorized in the action alternatives are not anticipated to have a direct, indirect, or cumulative adverse effect on any threatened or endangered species in the Emerald Bay project area. Consultation was initiated with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. No terrestrial or threatened or endangered species are listed for the Emerald Bay Timber Sale project area (FS Mike Brown memo, 10/17/2000). A combined Biological

Assessment (BA) and Biological Evaluation (BE) was prepared for the Emerald Bay Timber Sale, as required by Section 7 of the Endangered Species Act (ESA), as amended, and the USDA Forest Service Threatened, Endangered and Sensitive Plant and Animal Species Policy (FSM 2670). Additional surveys were completed in 2003 and the BA/BE was updated. Concurrence on the final BA/BE was received from USFWS on August 8, 2005, and from NMFS on September 6, 2005. The BA/BE is included as Appendix B of the Final SEIS.

Magnuson-Stevens Fishery Conservation and Management Act of 1996

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act states that all Federal agencies must consult the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for actions or proposed actions that may adversely affect essential fish habitat (EFH). The Act promotes the protection of EFH through review, assessment, and mitigation of activities that may adversely affect these habitats.

The potential effects of the project on essential fish habitat have been evaluated. For specific information regarding essential fish habitat and the potential effects refer to the Emerald Bay project area Fisheries Resource Report and the Fisheries section of Chapter 3 in the Final SEIS. Analysis completed in the cumulative effects sections for fisheries, soils, and water indicate no significant changes to Riparian Management Areas (RMAs) and floodplains resulting from proposed management activities.

Five factors were considered in evaluating the potential effects on essential fish habitat:

1. Forest Plan Standards and Guidelines for process group riparian buffers have been applied in all instances on Class I, II, and III streams
2. BMPs described in the unit and road cards provide assurance of water quality and aquatic habitat protection for all freshwater streams and marine waters affected by the project
3. Approximately 15 acres of slopes greater than 72 percent have been field reviewed by professional soil scientists who determined harvest of these slopes can be accomplished with no damage to other resources
4. Road construction includes log stringer bridges for all crossings of Class I or II streams
5. Logs would be loaded directly onto a barge so little bark debris would accumulate on the subtidal substrate

The Forest Service determined that Emerald Bay Timber Sale may adversely affect Essential Fish Habitat. However, by implementing Forest Plan Standards and Guidelines and Best Management Practices, effects to Essential Fish Habitat would be minimized. Additional impacts to EFH are likely to occur only from unforeseen events. Concurrence on the EFH finding was received from NMFS on December 18, 2003. Formal Essential Fish Habitat consultation has been completed in accordance with the agreement between the Forest Service and National Marine Fisheries Service.

National Forest Management Act (NFMA) of 1976 (as amended)

The Forest Plan complies with all resource integration and management requirements of 36 CFR 219 (219.14 through 219.27). Application of Forest Plan direction for the Emerald Bay Timber Sale project ensures compliance at the project level. All required interagency review and coordination has been accomplished. Units 11b and 12b each have clearcut areas totaling over 100 acres; however, no individual created openings would exceed 100 acres.

All alternatives fully comply with the Forest Plan and Forest Service Manual (FSM) 2410.3, R10 Supplement 2400-2002-1 (5/7/2002). The Emerald Bay project incorporates all applicable Forest Plan Standards and Guidelines and management area prescriptions, as they apply to the project area, and complies with Forest Plan goals and objectives.

National Historic Preservation Act (NHPA) of 1966 (as amended)

Heritage resource surveys of various intensities have been conducted in the project area, following inventory protocols approved by the Alaska State Historic Preservation Officer. The State Historic Preservation Officer has been consulted, in accordance with Section 106 of the NHPA and 36 CFR Part 800. I have determined that there will be no effects on known heritage resources.

Native communities have been contacted and public comment encouraged. The Forest Service has satisfied the consultation process with the State Historic Preservation Officer. Forest Service timber sale contracts contain enforceable measures for protecting any undiscovered heritage resource that might be encountered during sale operations. See discussion under Heritage Resources in Chapter 3 of the Final SEIS.

Tongass Timber Reform Act (TTRA) of 1990

Harvest units were designed with no less than 100-foot buffer zones for all Class I streams and Class II streams which flow directly into Class I streams as required in Section 103 of the TTRA.

Other Findings

Forest Service Transportation Final Administrative Policy (Roads Rule)

The Emerald Bay Timber Sale Final SEIS and this ROD have been prepared to be consistent with the Forest Service Transportation Final Administrative Policy, the *Tongass National Forest Level Road Analysis* (January 2003), and the Emerald Bay Roads Analysis and Determination.

Executive Orders

Executive Order 11988 (Floodplains)

Executive Order 11988 directs Federal agencies to take action to avoid, to the extent possible, the long- and short-term adverse effects associated with the occupancy and modification of floodplains. The numerous streams in the project area make it impossible to avoid all floodplains during timber harvest and road construction. The project design and the application of BMPs combine to minimize adverse effects on floodplains.

Executive Order 11990 (Wetlands)

Executive Order 11990 requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse effects associated with the destruction or modification of wetlands. Roaded access to the project area cannot avoid wetlands. Techniques and practices required by the Forest Service serve to maintain the wetland attributes including values and functions. Soil moisture regimes and vegetation on some wetlands may be altered in some cases; however, these altered acres would still be classified as wetlands and function as wetlands in the ecosystem.

Executive Order 12898 (Environmental Justice)

Executive Order 12898 directs Federal agencies to state clearly in the EIS whether a disproportionately high and adverse human health or environmental impact on minority populations, low-income populations or Indian tribe is likely to result from the proposed action and any alternatives. The Executive Order specifically directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish or wildlife. The issue of environmental justice has been addressed through the subsistence and socioeconomic analyses in Chapter 3 of the Final SEIS. Environmental justice was not identified as an issue for the Emerald Bay project because: 1) the Socioeconomic Panel's evaluation of the Forest Plan alternatives effect on the community of Meyers Chuck (Forest Plan FEIS p. 3-527 and 3-608 to 611), 2) the Forest Plan determination that Selected Alternative 11 would be similar in its

effects to the rated alternatives, 3) the Emerald Bay project falls within the scope of the Forest Plan, and 4) the Emerald Bay project is not likely to have a significant possibility of a significant restriction on subsistence resources (Final SEIS, Chapter 3, Subsistence section).

Executive Order 12962 (Aquatic Systems and Recreational Fisheries)

Executive Order 12962 requires Federal agencies to evaluate the effects of proposed activities on aquatic systems and recreational fisheries. The Selected Alternative minimizes the effects on aquatic systems through project design, watershed assessment, application of Forest Plan Standards and Guidelines, BMPs, and site-specific mitigation measures. Recreational fishing opportunities would remain essentially the same because aquatic habitats are protected through implementation of BMPs and riparian buffers.

Executive Order 13007 (Indian Sacred Sites)

Executive Order 13007, Indian Sacred Sites, provides presidential direction to Federal agencies to give consideration to the protection of American Indian sacred sites and allow access where feasible. In a government-to-government relationship, the tribal government is responsible for notifying the agency of the existence of a sacred site. A sacred site is defined as a site that has sacred significance due to established religious beliefs or ceremonial uses, and which has specific, discrete, and delineated location, which has been identified by the tribe. Tribal governments or their authorized representatives have not identified any specific sacred site locations in the project area.

Executive Order 13175 (Government-to-Government Consultation)

Executive Order 13175 directs Federal agencies to respect tribal self-government, sovereignty, and tribal rights, and to engage in regular and meaningful government-to-government consultation with tribes on proposed actions with tribal implications. The Forest Service met with four tribes during the planning stages of the project.

Wrangell Cooperative Association, Wrangell AK 10/02/98, 11/01/04, 11/11/04, 11/12/04

Saxman Tribal Council, Saxman AK 11/03/04

Metlakatla Indian Community, Metlakatla AK 11/16/04

Ketchikan Indian Community, Ketchikan AK 10/25/04

Executive Order 13186 (Migratory Birds)

The Migratory Bird Treaty Act of 1918 (amended in 1936 and 1972) prohibits the taking of migratory birds, unless authorized by the Secretary of Interior. The law provides the primary mechanism to regulate waterfowl hunting seasons and bag limits, but its scope is not just limited to waterfowl. Over 100 species of birds migrate from other states and countries to Alaska to breed, nest, and fledge their young. Most of these birds fly to interior or northern Alaska and only pass through the project area on the way to their breeding grounds. The migratory species that may stay in the area utilize most, if not all, of the habitats described in the analysis for breeding, nesting, and raising their young. The effects on these habitats were analyzed for this project.

None of the action alternatives is anticipated to have a significant direct, indirect, or cumulative effect on any migratory bird species for this project area. There may be direct minor effects on individuals or small groups and their nests from the harvest of timber or the disturbance caused by harvest activities.

Federal and State Permits

Federal and State permits necessary to implement the authorized activities are listed at the end of Chapter 1 in the Final SEIS.

Planning Record

The planning record for this project includes the Draft EIS, Final EIS, Draft SEIS, Final SEIS, Forest Plan, all material incorporated by reference, and other critical materials produced during the environmental analysis of this project. The planning record is available for review at the Ketchikan-Misty Fiords Ranger District.

Implementation Process

Implementation of this decision may occur no sooner than 50 days following publication of the legal notice of the decision in the Juneau Empire, published in Juneau, Alaska.

Timber harvest activities in the Emerald Bay project area will take place in the Timber Production LUD, which are lands found suitable for timber production under provisions of the National Forest Management Act. The timber would be offered in one sale. The sale volume would be set aside as “shelf volume” if no acceptable bids are received. The sale could then be re-advertised in the future when market conditions improve.

This project will be implemented in accordance with Forest Service Manual (FSM) and Forest Service Handbook (FSH) direction for Timber Sale Project Implementation in FSM 2430 and FSH 2409.15. This direction provides a bridge between project planning and implementation and would ensure execution of the actions, environmental standards, and mitigations approved by this decision, and compliance with the TTRA and other laws. All applicable Best Management Practices (BMPs) will be applied to the Selected Alternative.

Implementation of all activities authorized by this Record of Decision will be monitored to ensure that they are carried out as planned and described in the Final SEIS.

Appendices 1 and 2 to this Record of Decision contain the Selected Alternative’s unit and road cards. These cards are an integral part of this decision because they document the specific resource concerns, management objectives, and mitigation measures to govern the layout of the harvest units and construction of roads. These cards will be used during the implementation process to assure that all aspects of the project are implemented within applicable standards and guidelines and that resource effects would not be greater than those described in the Final SEIS. Similar cards will document any changes to the planned layout, as the actual layout and harvest of the units occurs with project implementation.

The implementation record for this project will display:

- Each harvest unit, transportation facility, and other project components as actually implemented,
- Any proposed changes to the design, location, standards, and guidelines, or other mitigation measures for the project, and
- Authorization of the proposed changes.

Process for Change During Implementation

Proposed changes to the authorized project actions will be subject to the requirements of the National Environmental Policy Act (NEPA), the National Forest Management Act of 1976, Section 810 of the Alaska National Interest Lands Conservation Act, the Tongass Timber Reform Act, the Coastal Zone Management Act, and other laws concerning such changes.

In determining whether and what kind of NEPA action is required for proposed changes during implementation, the Forest Supervisor will consider the criteria set forth in the Code of Federal

Record of Decision

Regulations (40 CFR 1502.9(c)), and Forest Service Handbook (FSH) 1909.15, sec. 18 for determining whether to supplement an existing Environmental Impact Statement. In particular, the Forest Supervisor will determine whether the proposed change is a substantial change to the Selected Alternative as planned and already approved, and whether the change is relevant to environmental concerns. Connected or interrelated proposed changes regarding particular areas of specific activities will be considered together in making this determination. The cumulative impacts of these changes will also be considered.

Minor changes are expected during implementation to better meet on-site resource management and protection objectives. Minor adjustments to unit boundaries are also likely during final layout for the purpose of improving logging system efficiency. This will usually entail adjusting the boundary to coincide with logical logging setting boundaries. Many of these minor changes will not present sufficient potential impacts to require any specific documentation or other action to comply with applicable laws. Some minor changes may still require appropriate analysis and documentation to comply with FSH 1909.15, sec. 18.

Right to Appeal

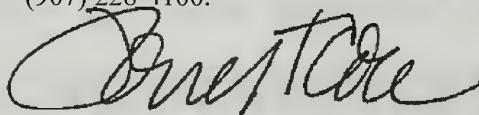
This decision is subject to administrative appeal. Organizations or individuals may appeal this decision according to Title 36 Code of Federal Regulations (CFR) part 215. The appeal must be filed within 45 days of the date that legal notification of this decision is published in the *Juneau Empire*, the official newspaper of record. The written Notice of Appeal must be filed with:

Regional Forester, Alaska Region
U.S. Department of Agriculture, Forest Service
P.O. Box 21628
Juneau, AK 99802-1628

It is your responsibility to provide the Regional Forester with sufficient evidence and rationale to show why the decision by the Forest Supervisor should be changed or reversed. The Notice of Appeal must:

1. State that the document is a Notice of Appeal filed pursuant to 36 CFR Part 215,
2. List the name, address, and, if possible, the telephone number of the appellant,
3. Identify the decision document by title and subject, date of the decision, and name and title of the Responsible Official,
4. Identify the specific change(s) in the decision that the appellant seeks or portion of the decision to which the appellant objects, and
5. State how the Responsible Official's decision fails to consider comments previously provided, either before or during the comment period specified in 36 CFR 215 and, if applicable, how the appellant believes the decision violates law, regulation or policy.

For additional information concerning this decision, contact Lynn Kolund, District Ranger, Ketchikan-Misty Fiords Ranger District, 3031 Tongass Ave, Ketchikan, AK 99901, or call (907) 228-4100.



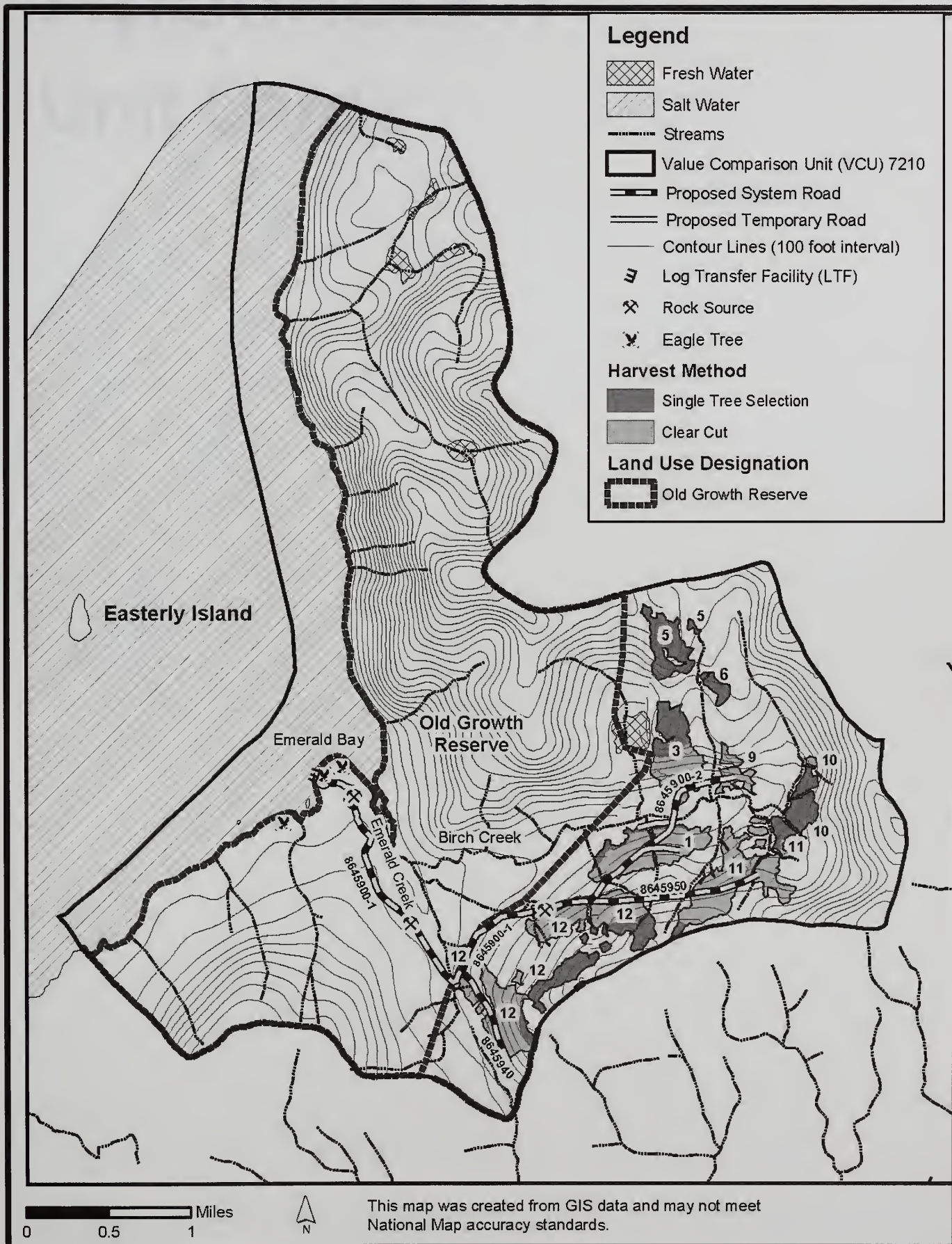
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Date

Selected Alternative – Record of Decision



Record of Decision

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Appendix 1

Unit Cards

Appendix A

Unit 2

Appendix 1

Unit Cards

Best Management Practices and Forest Plan Standards and Guidelines

These general measures apply to all units and roads in the Emerald Bay project. The source(s) of each general measure are listed after the measure, in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook). These measures are listed on each unit or road card as necessary.

Minor discrepancies in mapping may occur, particularly when mapping various buffer widths at a scale designed to fit an 8.5 by 11 inch page. Where these discrepancies occur, the information contained in the unit card narrative applies.

Where applicable, mitigation requirements will be included as provisions of the timber sale contract.

Air Quality

Air Quality Protection: Design projects to control air pollution impacts and to ensure that the predicted emissions from all pollution sources do not exceed ambient air quality standards, as specified under the Alaska Administration Code, Title 18, Chapter 50. (AIR 112)

Fish, Water, and Soils

Riparian Buffers: Establish no-harvest and selective-cut buffers along streams and around lakes to protect riparian areas as defined by the Riparian Standards and Guidelines. Protect buffers from adjacent harvest activities (e.g., directional felling, split yarding, suspension requirements). (RIP 2, BMP 12.6)

Directional Felling Along Buffers: Trees identified for harvest will be felled to avoid riparian areas designated for "no commercial harvest" and stream courses. (RIP 2-II)

Class III/IV Stream Protection: Split yard and directionally fall trees away from Class III and IV streams without buffers. (RIP 2-II)

Yarding Across Streams: Fully suspend logs where yarding is to be done across streams or the full length of a stream or drainage. (RIP 2-II)

Fish Passage: Maintain fish passage at Class I and II stream road crossings using properly designed stream-crossing structures (consult FSH 2090). (FISH 112-IV)

Use of Bridges: Install bridges at designated stream crossings to minimize the amount of sediment entering streams and/or to ensure good fish passage. (TRAN 214-II)

Instream Construction Timing Restrictions: Implement timing restrictions for instream construction activities for the protection of anadromous and resident fish. (RIP 2-II and BMPs 14.6, 14.10, 14.14, and 14.17)

Siting of Road-Stream Crossings: Modify the location of road-stream crossings to correspond with stable stream reaches. (TRAN 214-II)

Routing of Roads near Streams: Modify road routes to avoid locations near fish-bearing streams. (TRAN 214-II)

Routing of Roads through Wetlands and Other Sensitive Areas: Modify location of Forest Development Roads to minimize impact to wetlands, floodplains, estuaries, and tidal meadows. (TRAN 214-III)

Harvesting Timber in/near Wetlands and Floodplains: Modify unit design or logging system to avoid or minimize damage to muskegs, other wetlands, or floodplains. (S&W 112-I, BMPs 12.4 and 12.5)

Management of Road Use to Reduce Erosion and Sedimentation: Control access and manage road use to reduce the risk of erosion and sedimentation from road surface disturbance especially during the higher-risk periods associated with high runoff and spring thaw conditions. (BMP 14.22)

Road Storage: Establish self-maintaining drainages across roads, remove bridges and reestablish natural drainage patterns, and establish vegetation cover on the road to prevent erosion during periods of inactivity. (TRAN 22-I)

Avoid Harvesting Very High Hazard Soils: Modify unit design to avoid very high mass movement areas, including slopes over 72 percent. (S&W 112-I, BMP 13.5)

Avoid Road Development on Very High Hazard Soils: Avoid road construction along unstable slopes, including slopes over 67 percent. (S&W 112-I and BMP 13.5)

Soil/Water Protection during Timber Sale Planning: Incorporate soil and water resource considerations into timber sale planning. Include:

- site-specific considerations,
 - site preparation,
 - designating water quality protection needs on sale area maps,
 - locating and designing landings for good drainage and dispersion of water,
 - incorporating erosion control and timing responsibilities into the Operating Schedule,
 - scheduling and enforcement of erosion control during and at completion of the timber sale,
 - including non-recurring "C" provisions to protect soil and water resources in timber sale contracts,
 - and seeking an environmental modification of the contract if new circumstances or conditions indicate that soil, water, or watershed damage may occur.
- (BMPs 13.1, 13.2, 13.3, 13.4, 13.9, 13.10, 13.11, 13.12, 13.14, 13.17, and 13.18)

Soil/Water Protection during Road Development: Implement measures to reduce surface erosion and drainage interruption related to transportation. This includes water-barring and cross-draining roads using ditches and culverts to prevent water running long distances over roads, closure, and seeding and fertilizing cut-and-fill slopes. (BMPs 14.1, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.19)

Soil/Water Protection during Road Management: Conduct road maintenance and snow removal operations to minimize disruption of road surfaces, embankments, ditches, and drainage facilities, and use road closures or other measures to keep road surface and road site erosion at low or background levels. (TRAN 23-I, BMPs 14.20 and 14.23)

Management of Road Use to Reduce Erosion and Sedimentation: Control access and manage road use to reduce the risk of erosion and sedimentation from road surface disturbance especially during the higher risk periods associated with high runoff and spring thaw conditions. (BMP 14.22)

Soil/Water Protection during Development of Rock Sources, LTFs, & Other Facilities: Implement measures to reduce surface erosion and other impacts on soils and water from

gravel sources and quarries, LTFs, sortyards, and other facilities. (BMPs 14.18, 14.19, 14.25, 14.26, and 14.27)

LTF Siting: Site LTFs in locations which will best avoid or minimize potential impacts on water quality, aquatic habitat, wildlife, and other resources. (TRAN 214-V, WILD 112, and BMP 14.4)

Accidental Spills: Implement measures and plans to prevent the contamination of soil and water from accidental spills of petroleum products and hazardous substances. (BMPs 12.8 and 12.9)

Wetland Protection: Minimize the loss of all wetlands, but particularly the higher-value wetlands (especially fens), and minimize the adverse impacts of land management activities on wetlands; follow Executive Order 11990 and the BMPs. (WET-I, WET-III, BMP 12.5)

Soil/Water Protection along Roads on Very High Hazard Soils: Where avoidance of road construction along unstable slopes is not possible, take special precautions with fill to prevent soil erosion, stream sedimentation, and mass wasting or require full bench construction and end hauling of excavated material. (S&W 112-I, TRAN 214-II, and BMP 14.7)

Suspension Requirements to Protect Soils: Use partial- to full-suspension logging systems in areas with high mass movement potential. (S&W 112-I, BMP 13.9)

Steep, Class IV, V-notch Streams: Establish no-harvest buffers along steep, Class IV, V-notch streams with high erosion potential. (S&W 112-I, BMPs 12.6 and 13.16)

Windthrow Hazards Along the Boundaries of Protected LUDs: Take measures that protect LUDs which prohibit timber harvest activities from harvest-related windthrow. (TIM 114-XII)

Maintain Advance Regeneration: Maintain advance regeneration within the unit to meet reforestation needs and stand objectives. (TIM 111-2-I)

Maximum Size of Created Openings: Limit created openings to a maximum size of 100 acres. (TIM 114-IV)

Certification of Reforestation: Certify that every unit that receives a final harvest inspection meets or surpasses the stocking guidelines and certification standards (FSH 2409.17) within 5 years. (TIM 24)

Maintain Minor Tree Species: Selectively maintain minor species (e.g., yellow-cedar, western redcedar, Pacific yew), where appropriate for the site, as viable components of future stand, for vegetative diversity, and for seed trees. (TIM 111-2-I, TIM 114-II)

Beach and Estuary Fringe Protection: Avoid harvest within the beach and estuary fringe; avoid road construction within this zone, except where no feasible alternative exists. (BEACH 2)

Non-Development LUD Protection: Avoid timber harvest impacts and minimize road construction within non-development LUDs such as Old-growth Habitat, Remote and Semi-remote Recreation, and Wild and Scenic River corridors. Road through medium old-growth reserve will be built to ensure minimal impact, closed to the public at all times, and put in storage immediately following completion of silvicultural activities.

Connectivity Between Old-growth Reserves: Provide corridors of old-growth forest between and among medium and large old-growth reserves. Where sufficient connectivity does not exist, or where the minimum Forest Plan criteria are not met, relocate or redesign mapped, small old-growth reserves. (WILD 112-XVIII)

Marine Mammal Protection: Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales,

Timber

Wildlife and Threatened/ Endangered/ Sensitive Species

dolphins, porpoises, seals, and sea lions. Site camps, LTFs, and other facilities are to be located at least 1 mile away from known Steller sea lion haulouts. (TE&S-I)

There will be no project-related boating activity within 200 yards of Easterly Island and no project-related air traffic within 1,500 vertical feet and 1/2-mile horizontal distance of Easterly Island.

Camp and Facility Siting: Site camps and other facilities sufficiently far from important seasonal bear concentrations, raptor nest sites, and other important wildlife habitats, to avoid or minimize wildlife-human conflicts. (WILD 112)

Sanitation at Facilities: Comply with all regulations for the disposal of sewage at camps, LTFs, and other facilities; require incinerators and/or other bear-proof garbage disposal methods at work camps. (FAC 1, FAC 22, WILD 112-VI, BMPs 12.10, 12.15, and 12.16)

Selection Harvest: Provide for greater habitat diversity on a stand level over time by using the selection method (uneven-aged system) as a harvest prescription (see Appendix G to Forest Plan Final EIS). (WILD 112-III)

Leaving Nonmerchantable Trees and Snags: Provide for greater habitat diversity on a stand level over time by leaving most nonmerchantable trees and snags after harvest. (WILD 112-III)

Restrictions on Helicopter Yarding: Modify helicopter yarding routes and/or timing of helicopter activity to avoid important wildlife habitats (e.g., mountain goat summer/kidding habitat or active eagle nest sites). (WILD 112-XII)

Road Closures: Close roads to motorized use to protect brown bears, wolves, marten and other large predators and furbearers from overharvest. (WILD 112)

Protection of Bald Eagle Nest Trees/Other Sites and Timing of Activities: Avoid all activity, modify unit or road design, and/or limit timing of activities, near bald eagle nest trees, perch trees, and winter roost sites in accordance with the Interagency Agreement established with the U.S. Fish and Wildlife Service. (WILD 112-V)

Protection of Trumpeter Swan Nesting, Brooding, and Wintering Areas and Timing of Activities: Avoid all activity, modify unit or road design, and/or limit timing of activities, within 0.5 mile of wetlands used by nesting, brood-rearing, and wintering trumpeter swans to avoid impacts. (TE&S-II)

Management of Marten Habitat: Maintain important features of forest stand structure in harvest units in order to manage high-value marten habitat according to Forest-wide Standard and Guideline WILD 112-XVI, A, 2. (This applies to VCU in higher-risk biogeographic provinces). (WILD 112-XVI)

Rare or Endemic Terrestrial Mammals: Modify units or roads to avoid habitats supporting rare or endemic terrestrial mammals that may represent unique populations with restricted ranges. (WILD 112-XVII)

Protection of Sensitive Plant Species: Modify unit boundaries or road routing to avoid habitats supporting populations of sensitive plant species. (TE&S-II)

Protection of Candidate Species or Species of Concern: Modify units, roads, or other facilities to avoid or reduce impacts on U.S. Fish and Wildlife Service-designated Candidate Species and Species of Concern. (TE&S-III)

Corridors Between Old-Growth Habitat Reserves: Avoid harvest in order to maintain corridors of old-growth forest between Old-growth Habitat Reserves and other natural setting LUDs at the landscape scale. (WILD 112-XVIII)

Report of Wildlife Sightings: Field personnel are trained in identification of marbled murrelets, herons, raptors, and wolf dens. Sightings of these species or potential den sights are reported to a biologist for follow-up action.

Heritage Resources

Heritage Site Discovery: Suspend work if a heritage site is discovered during project implementation. Authorize resumption of work only after consultation with the State Historic Preservation Officer is complete.

Avoid Direct Effects on Heritage Resource Sites: Avoid road construction or harvest unit placement in areas with heritage resource value. (HER-IV)

Avoid Indirect Effects on Heritage Resource Sites: Provide for protection from indirect effects on heritage resource sites near proposed harvest units and roads. (HER-V4)

Mitigation through Data Recovery: Mitigate effects to valuable heritage resource sites through data recovery. (HER-IV)

Recreation/Tourism

Access Restrictions for Recreation: Close or restrict access on roads to maintain remoteness of areas after harvest (REC 112-II)

Scenery

Patch/Strip Clearcutting: Reduce visual contrast with adjacent areas by using patch or strip clearcutting (two-aged or uneven-aged systems) as a harvest prescription (see Appendix G to Forest Plan Final EIS). (VIS 11-III)

Selection Harvest: Reduce visual contrast with adjacent areas by using the selection method (uneven-aged system) as a harvest prescription (see Appendix G to Forest Plan Final EIS). (VIS 11-III)

Leaving Nonmerchantable Trees: Reduce visual contrast with adjacent areas by leaving most nonmerchantable trees after harvest. (VIS 11-III)

Modification of Unit Boundaries: Modify unit boundaries to assure that the harvest unit meets the proposed VQO in partial retention and retention areas. (VIS 11-II)

Treatment of Rock Sources: Locate rock sources off the road along Visual Priority Routes, so that rock source development is not apparent from the road and/or use a landscape architect in the planning/design of rock pits. (VIS 11-II)

Roadside Cleanup: Provide for roadside cleanup of ground-disturbing activities in partial retention and retention areas. (VIS 11-II)

LTF Design: Use low-profile LTF design to minimize visibility from Visual Priority Travel Routes and Use Areas. (VIS 11-II)

Temporary LTFs: Use temporary LTF and incorporate rehabilitation measures into project analysis and the contract package to reduce long-term visual effects in partial retention areas. (VIS 11-II)

Subsistence

Access Restrictions for Subsistence: Close or restrict access on roads to maintain remoteness of areas after harvest to address subsistence issues. (SUB-I)

Other Items Common to All Units

In addition to the Best Management Practices and Forest Plan Standards and Guidelines detailed above, several project-specific mitigations and harvest prescription specifications are common to all units. These are listed here, and apply to all units in the Selected Alternative.

Wildlife Mitigation:

To prevent disturbance to sea lions, project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout on Easterly Island. Floating camps and helicopter-to-barge operations would be required to maintain a 1-mile distance. Project-associated aircraft would be required to remain at least 0.5 mile horizontal and 1,500 feet vertical distance from the haulout.

Scenery:

All units as designed meet the Forest Plan visual objective of Maximum Modification as viewed in the middleground from the Ernest Sound visual priority route.

Silvicultural Prescription – Clearcuts (where prescribed):

Clearcutting is the optimum method of harvest where prescribed. Lands proposed for clearcut are in the Timber Production LUD where a management goal is to maintain and promote industrial wood production (USDA FS 1997).

Clearcutting is a recommended harvest method where timber production is the primary purpose because logging costs are lower than with other systems. Clearcutting also improves the site productivity by exposing the site to the sun, which raises the soil temperature and speeds decomposition (Burns 1983).

Clearcutting is required to promote the establishment and growth of Sitka spruce trees, which are shade intolerant and a desirable timber tree species.

Clearcutting will prevent damage to the residual of a partial cut in a moderate to severe wind-hazard area.

Clearcutting will prevent the damage and subsequent rot to the hemlock and spruce leave trees of a partial cut. Both tree species are susceptible to logging injury because they are thin barked and shallow rooted, which leads to decay and future volume loss.

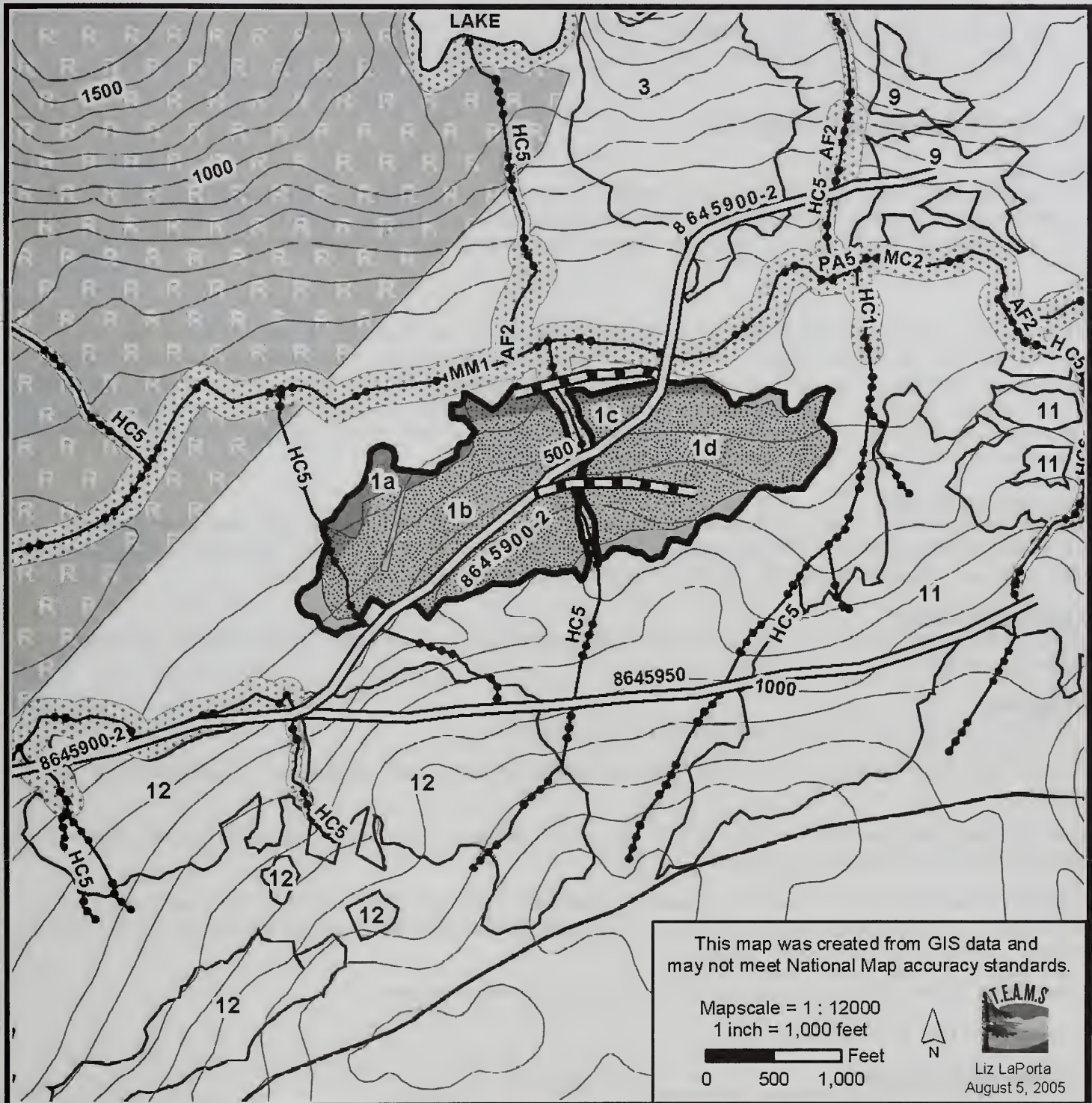
Streams Process Group and Channel Type

A process group describes streams with similar interrelationships between watershed runoff, landform relief, geology, and glacial or tidal influences on erosion and deposition. A channel type more precisely characterizes a stream and helps predict the probable responses to natural and human influences. Channel types incorporate other aspects such as gradient, pattern, stream bank incision and containment and riparian area vegetation communities. See the Forest Plan, Figure D-1 (page D-4) for a visual representation of the typical distribution of channel process groups. The following table shows the Forest Plan codes used on the unit and road card narratives. Each unit card summarizes the protection. Only the channel types found in the Emerald Bay project area are listed.

Table A1-1
Channel Types in the Emerald Bay Project Area

Process Group	Channel Type Code	Channel Type Description
Alluvial Fan	AF2	High Gradient Alluvial Cone Channel
High Gradient Contained	HC1	Shallowly Incised Muskeg Channel
	HC2	Shallowly to Moderately Incised Footslope Channel
	HC3	Deeply Incised Upper Valley Channel
	HC5	Shallowly Incised Very High Gradient Channel
	HC6	Deeply Incised Mountain Slope Channel
Moderate Gradient Contained	MC1	Narrow Shallow Contained Channel
	MC2	Moderate Width and Incision Contained Channel
Moderate Gradient, Mixed Control	MM1	Narrow Mixed Control Channel
Palustrine	PA5	Beaver Dam/Pond Channel

Source: Forest Plan, pages D-1 - D-3.



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|---|-----------------------------------|-----------------------|
| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (1a West / 1c East) | High Value Marten | AHMU Stream Class II |
| Clear Cut (1b West / 1d East) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 1

Harvest Acres:	87	MBF Volume:	2,637	CCF Volume:	5,274
Aerial Photo:	1973	Flight #:	29	Photo #:	31

Resource Concerns and Mitigation

Wildlife:

This unit includes 77 acres of high-value marten habitat: 72 acres to be clearcut and 5 acres of single-tree selection. Marten guidelines to apply in clearcut area: maintain 10-20 percent of original stand structure, average four large trees/acre (20-30"+ diameter breast height (dbh)), average three snags per acre, average three pieces downed logs/acre (20-30"+ dbh) (W28).

Wetlands:

There are approximately 14 acres of Forested Wetlands in the northwest corner of Unit 1a. Most of the wetland area is planned for shovel yarding and single-tree selection. Shovel yarding needs to follow the guidelines documented in BMP 13.9. Bearing strength of the soils in the area is low. There are inclusions of forested organic soils in the unit. Suitability for shovel yarding will be somewhat dependant on soil moisture. Shovel yarding should only take place in the summer when soil moisture contents are low and bearing strengths higher. A running skyline system with a minimum of partial suspension is preferred if it can be accomplished without additional road (BMP 12.5).

Landslide-prone Soils:

The soils in Unit 1 lie on slopes less than 60 percent gradient and are not landslide-prone. Soils mapped are deep and somewhat erodible. BMP 12.17, "Revegetation of Disturbed Areas" should be used to treat any areas disturbed during the yarding process. Partial suspension is required in the cable-yard portion of the unit (BMP 13.9).

Fisheries/Hydrology:

The north boundary of Units 1a and 1c are adjacent to the stream buffer on Birch Creek. The riparian area is defined by a timber type change.

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class IV HC5 flows through southwest Unit 1b corner. Directional felling, split yarding, and full suspension may be required.

Class II MMI adjacent to north boundary of Units 1a and 1c: greater then 120-foot or RMA buffer required, additional 120-foot select harvest windfirm buffer required.

Class II PA5 adjacent to Unit 1c northwest boundary: greater then 100-foot or RMA buffer required; additional 85-foot select harvest windfirm buffer required. Additional leave trees may be required to insure the effectiveness of the windfirm buffer.

Class III HC5 flows between Units 1a, b and 1c, d and a RMA buffer is required.

Follow BMPs 12.6, 12.6a and 13.16.

Silvicultural Prescription:

Unit 1a and 1c: Use Single-tree selection (9 acres)

Leave approximately 50 percent of basal area using a prescription similar to that listed below. The reason for the selection cut is to increase the effectiveness of the windfirm buffer by leaving a wind-reducing tree line. Additional leave trees may be required to insure the effectiveness of the windfirm buffer.

Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+

Unit 1b and 1d: Clearcut (78 acres)

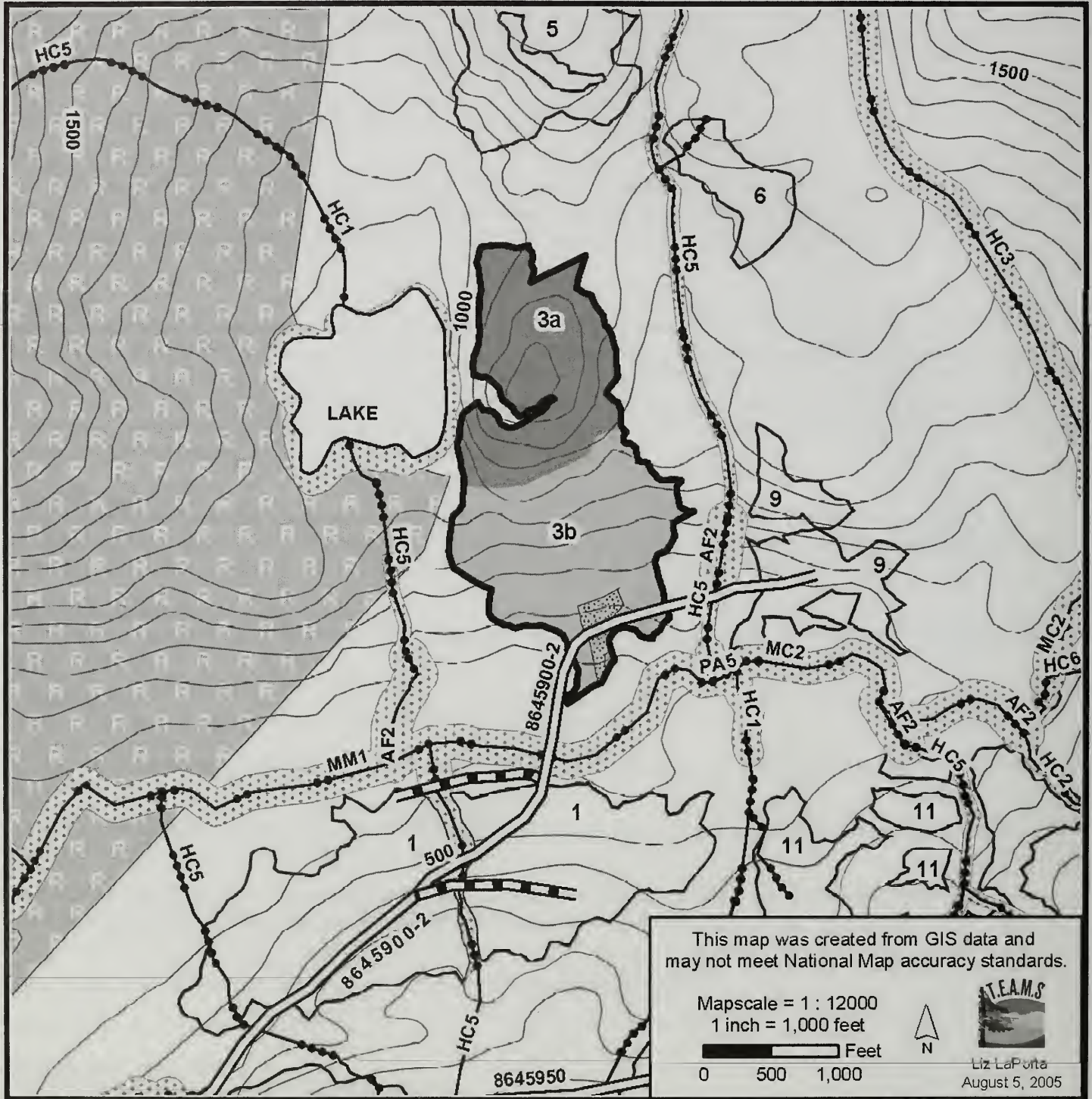
Clearcutting is necessary to rehabilitate this stand's severe past porcupine stem damage, moderate stem decay, moderate Alaskan cedar decline, and light mistletoe.

Logging System and Unit Design:

Cable log using running skyline with partial suspension for all of Unit 1c, 1d and the northwest portion of Unit 1b. Shovel yard the remainder of Unit 1a and 1b.

Transportation:

Two temporary roads will be needed.



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|----------------------------|-----------------------------------|-----------------------|
| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (3a) | High Value Marten | AHMU Stream Class II |
| Clear Cut (3b) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 3

Harvest Acres:	<u>76</u>	MBF Volume:	<u>2,263</u>	CCF Volume:	<u>4,526</u>
Aerial Photo:	<u>1973</u>	Flight #:	<u>29</u>	Photo #:	<u>32</u>

Resource Concerns and Mitigation

Wildlife:

This unit includes 2 acres of high-value marten habitat to be clearcut. Marten guidelines to apply in clearcut area: maintain 10-20 percent of original stand structure, average four large trees/acre (20-30"+ diameter breast height (dbh)), average three snags per acre, average three pieces downed logs/acre (20-30"+ dbh) (W28). Old-growth reserve is located near western unit boundary.

Wetlands:

Almost all of Unit 3 lies on a Forested Wetland and Forested Upland complex. The wetlands occur on moderately sloping to steep mineral soils. A minimum of partial suspension is required. The unit is planned for slackline and helicopter yarding, which will meet resource objectives (BMP 12.5 and 13.9).

Landslide-prone Soils:

Soils in Unit 3 are steep with an estimated 15 acres on slopes over 72 percent gradients. To meet soil resource concerns, 4 of the acres are in a leave island and the remaining slopes over 72 percent are in a partial-cut helicopter-yard setting (BMPs 13.5, 13.9, and 13.2). Partial suspension is required in the cable-log portion of the unit (BMP 13.9).

Fisheries/Hydrology:

Unit 3b borders Birch Creek to the south and a water-quality stream to the east of Unit 3a and 3b. The Class III water-quality stream has formed a small alluvial deposit on the eastern boundary of Unit 3b; the no-cut buffer includes the alluvium deposit. The west boundary of Unit 3a borders a small lake that requires a 100-foot RMA buffer.

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class III HC5 adjacent to east Unit 3a and 3b boundary: no timber harvest within the V-notch or on the alluvium deposit, manage a reasonable distance (site potential tree height is 120 feet) beyond the slope break/alluvium for windfirmness.

Class II HC1 adjacent to southeast Unit 3b corner: no harvest within the greater of 100 feet or the V-notch; manage a reasonable distance (site potential tree height is 120 feet) beyond the slope break for windfirmness

Class II PA5 adjacent to Unit 3b south boundary: greater than 100-foot or RMA buffer required; additional 85-foot select harvest windfirm buffer required.

Follow BMPs 12.6, 12.6a and 13.16.

Silvicultural Prescription:

Unit 3a: Single-tree selection (34 acres)

Use single-tree selection to remove approximately 50 percent of the basal area using a prescription similar to that listed below. The reason for the selection cut is to maintain the roadless character of the Cleveland Peninsula by implementing an uneven-aged system that retains a forested appearance on all acres not accessible by road.

Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+.

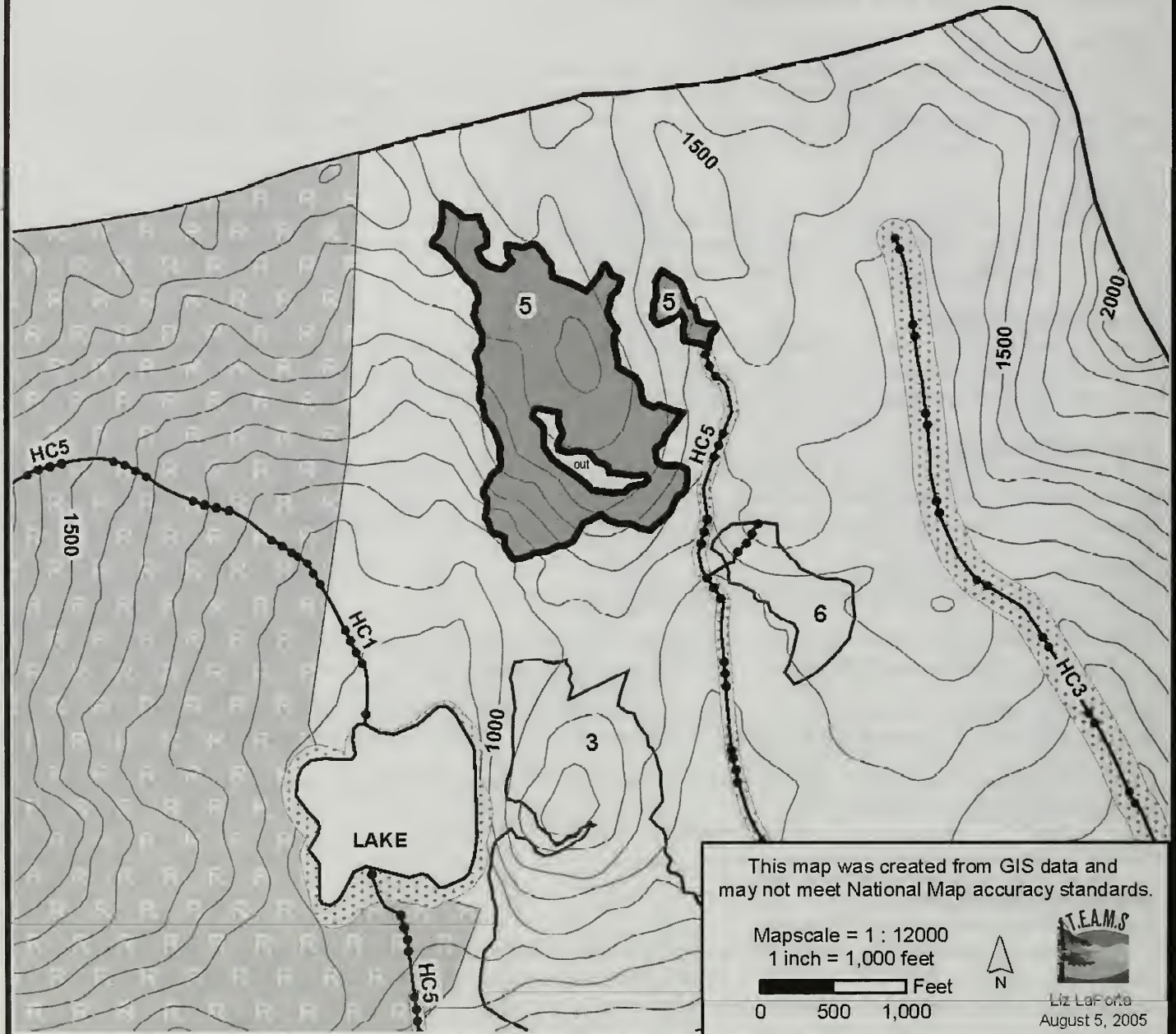
Unit 3b: Clearcut (42 acres)

This stand has moderate Alaska yellow-cedar decline. Clearcutting prevents financial losses by salvaging expected mortality caused by this disease.

Logging System and Unit Design:

Helicopter yard 28 acres in the northern end of the unit to the road.

Cable yard with running skyline the remaining 48 acres.



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| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (5) | High Value Marten | AHMU Stream Class II |
| Clear Cut (Not Applicable) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 5

Harvest Acres:	<u>50</u>	MBF Volume:	<u>902</u>	CCF Volume:	<u>1,804</u>
Aerial Photo:	<u>1973</u>	Flight #:	<u>29</u>	Photo #:	<u>32</u>

Resource Concerns and Mitigation

Wildlife:

No concerns identified.

Wetlands:

All of Unit 5 is mapped as a complex of Forested Wetlands and Forested Uplands. The Forested Wetlands are on mineral soils on moderately to steeply sloping ground. Unit 5 is planned for helicopter yarding with full suspension, which will meet resource objectives outlined in BMP 12.5 and 13.9.

Landslide-prone Soils:

There is approximately 1 acre of slopes greater than 72 percent gradient in Unit 5. The pitch is very short and landslide potential appears to be low (BMP 13.5). A minimum of partial suspension is required, and full suspension is planned via helicopter yarding (BMP 13.9).

Fisheries/Hydrology:

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class III HC5 adjacent to tip of east unit boundary: no timber harvest within the V-notch, manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Silvicultural Prescription:

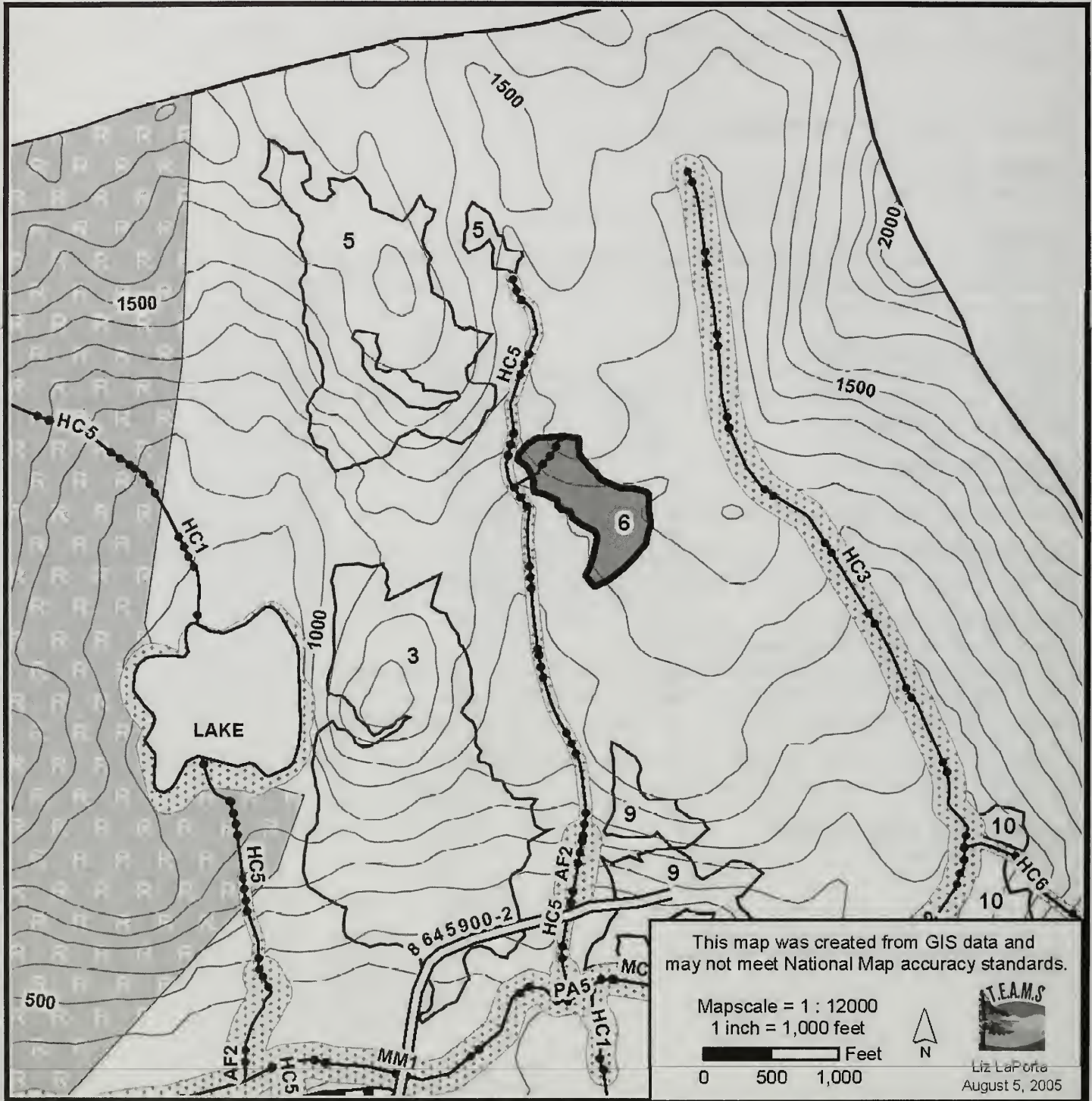
Unit 5: Single-tree selection (50 acres)

Use single-tree selection to remove approximately 50 percent of the basal area, using a prescription similar to that listed below. The reason for the selection cut is to maintain the roadless character of the Cleveland Peninsula by implementing an uneven-aged system that retains a forested appearance on all acres not accessible by road.

Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+.

Logging System and Unit Design:

Helicopter yard to road.



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| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (6) | High Value Marten | AHMU Stream Class II |
| Clear Cut (Not Applicable) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 6

Harvest Acres:	<u>11</u>	MBF Volume:	<u>200</u>	CCF Volume:	<u>400</u>
Aerial Photo:	<u>1973</u>	Flight #:	<u>29</u>	Photo #:	<u>32</u>

Resource Concerns and Mitigation

Wildlife:

No concerns identified.

Wetlands:

The entire unit is mapped as Forested Wetland, cedar-hemlock-blueberry plant association. Full suspension via helicopter yarding will provide a low-impact yarding method per BMP 12.5.

Landslide-prone Soils:

There are perhaps 2 acres of slopes greater than 72 percent in the unit associated with a small cliff. The soils in the unit have a low to moderate mass movement index (BMP 13.5). A minimum of partial suspension is required. Full suspension via helicopter yarding will be achieved (BMP 13.9).

Fisheries/Hydrology:

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class III HC5 adjacent to west unit boundary: no timber harvest within the V-notch, manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Silvicultural Prescription:

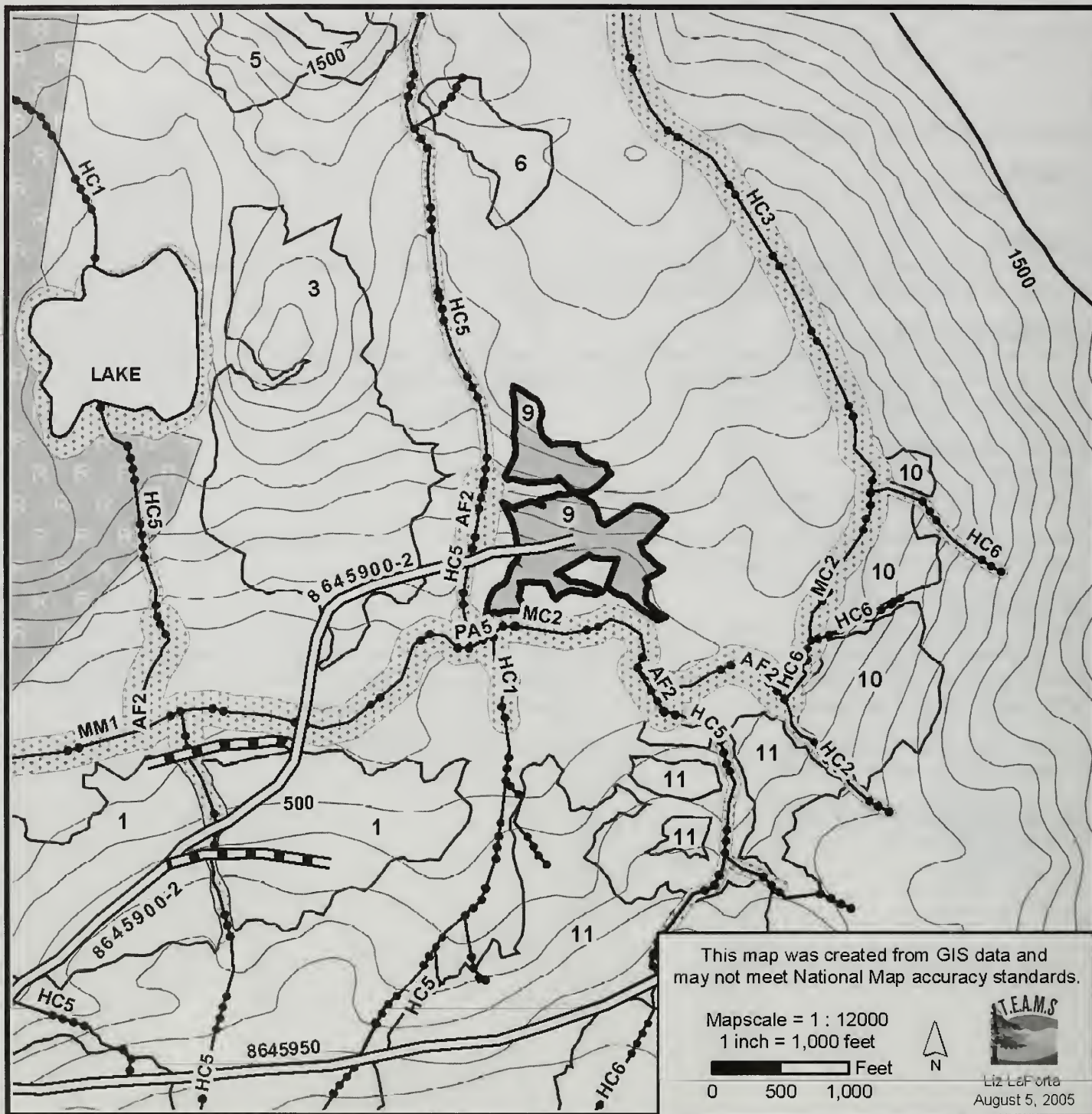
Unit 6: Single-tree selection (11 Acres)

Use single-tree selection to remove approximately 50 percent of the basal area using a prescription similar to that listed below. The reason for the selection cut is to maintain the roadless character of the Cleveland Peninsula by implementing an uneven-aged system that retains a forested appearance on all acres not accessible by road.

Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+.

Logging System and Unit Design:

Helicopter yard to road.



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| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (Not Applicable) | High Value Marten | AHMU Stream Class II |
| Clear Cut (9) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 9

Harvest Acres:	<u>20</u>	MBF Volume:	<u>645</u>	CCF Volume:	<u>1,289</u>
Aerial Photo:	<u>1973</u>	Flight #:	<u>29</u>	Photo #:	<u>32</u>

Resource Concerns and Mitigation

Wildlife:

Wetlands:

Nearly the entire unit is mapped as a Forested Wetland and Forested Wetland and Upland complex. A 1-acre non-forested poor fen (muskeg) lies in the southwest corner of the unit adjacent to the stream buffer on the west side of the unit. The muskeg is included in the stream buffer (BMPs 12.5 & 13.16). Partial suspension is required on the remainder of the unit (BMP 13.9).

Landslide-prone Soils:

Slopes in Unit 9 range up to 60 percent gradient and no slopes over 72 percent were identified (BMP 13.5). Partial suspension is required to protect wetlands and prevent erosion (BMPs 13.9, 12.5 & 13.14).

Fisheries/Hydrology:

Unit 9 is bordered by a water-quality stream to the west and a Class II stream with high-value fish habitat, wetland, and riparian area to the south (BMPs 12.5 & 12.6l). The area south of the unit is fluvial and supports the only tall sedge fen identified on the project area. This area is part of the windfirm buffer that includes the entire riparian area (BMPs 12.6a & 13.16). The extent of the riparian area needs to be verified during project implementation.

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class III HC5 adjacent to west unit boundary: no timber harvest within the V-notch, manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Class III AF2 adjacent to west boundary: a buffer that is the greater of 140-foot or active portion of alluvial fan is required.

Class II HC1 adjacent to southwest unit corner: no harvest within the greater of 100 feet or the V-notch; manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Class II PA5 adjacent to south boundary: greater of 100-foot or RMA buffer required; additional 85-foot select harvest windfirm buffer required.

Class II MC2 adjacent to south boundary: no harvest within the greater of 100 feet or the channel sideslope break required.

Silvicultural Prescription:

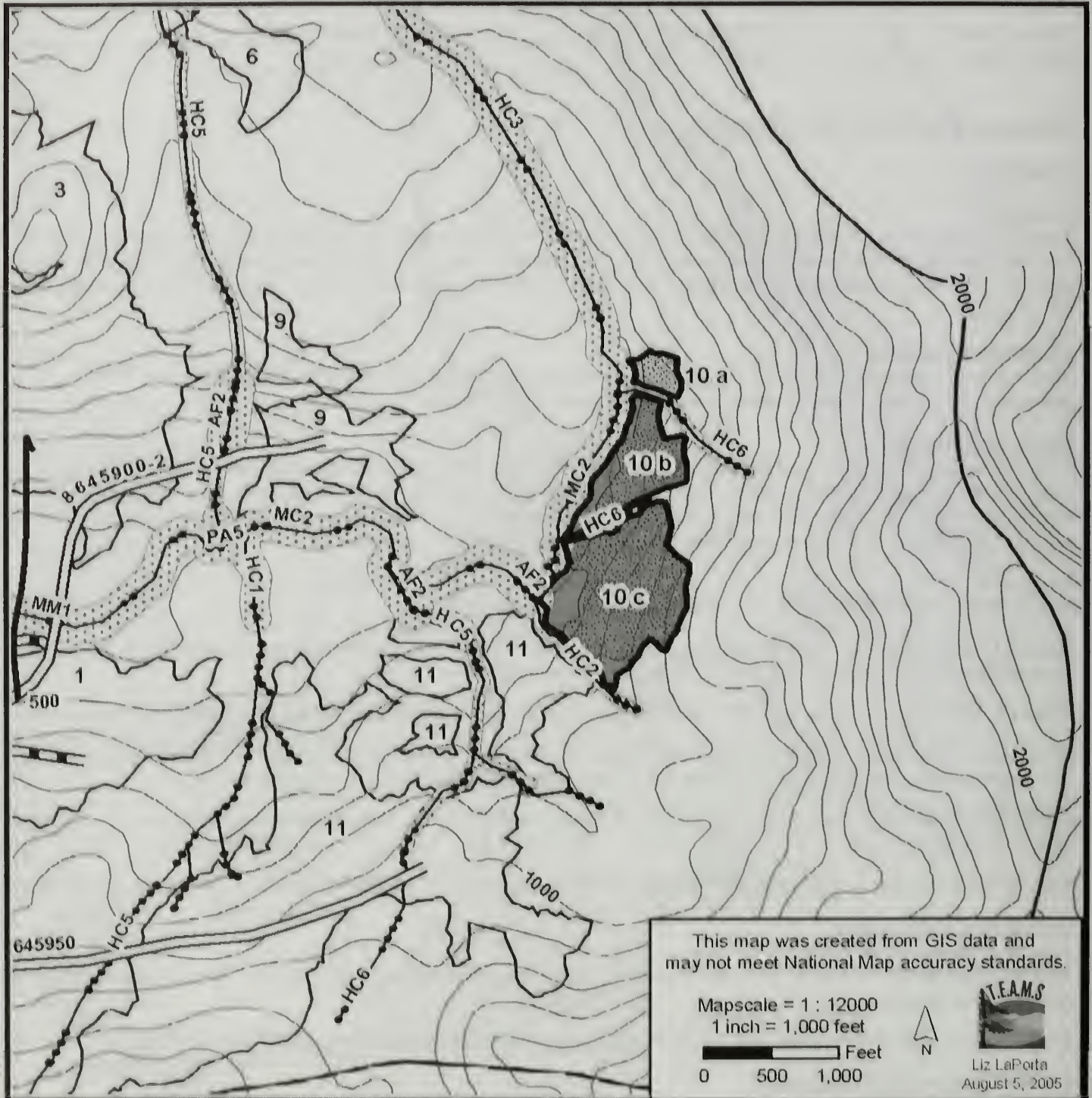
Unit 9: Clearcut (20 Acres)

This stand has moderate Alaska yellow-cedar decline. Clearcutting prevents financial losses by salvaging expected mortality caused by this disease.

Clearcutting is necessary to rehabilitate this stand's light porcupine stem damage, stem decay, and mistletoe.

Logging System and Unit Design:

Cable-yard running skyline.



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|-------------------------------------|-----------------------------------|-----------------------|
| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (10 b & 10 c) | High Value Marten | AHMU Stream Class II |
| Clear Cut (10 a) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 10

Harvest Acres:	30	MBF Volume:	690	CCF Volume:	1,360
Aerial Photo:	1973	Flight #:	29	Photo #:	32

Resource Concerns and Mitigation

Wildlife:

These units include 26 acres of high-value marten habitat; 2 acres to be clearcut and 24 acres of single-tree selection. Marten guidelines to apply in clearcut openings over 2 acres: maintain 10-20 percent of original stand structure, average four large trees/acre (20-30"+ diameter breast height (dbh)), average three snags per acre, average three pieces downed logs/acre (20-30"+ dbh) (W28). An occupied red-tailed hawk nest was found in the northern portion of Unit 10.

Mitigation:

Applicable standards and guidelines (600-foot windfirm buffer) will be applied to the red-tailed hawk nest as long as the nest remains occupied. The seasonal restriction around occupied nests is March 1st to July 31st. Occupancy surveys will be conducted annually.

Wetlands:

The south end of Unit 10b is mapped as Forested Wetland. The remainder of the unit is mapped as Forested Upland and Forested Wetland complex. Field verification indicates that the unit is mostly uplands. Partial suspension is required to protect wetlands (BMP 12.5). Full suspension is planned via helicopter yarding (BMP 13.9).

Landslide-prone Soils:

Slopes in Unit 10a and 10b are less than 60 percent gradient. No slopes over 72 percent were identified. The mass movement rating ranges from low to high in Unit 10c and low in Unit 10a and 10b. A minimum of partial suspension is required to prevent erosion (BMP 13.9 and 13.14). Full suspension is planned via helicopter yarding. Unit 10b and c is also planned for a selective harvest which will further minimize erosion.

Fisheries/Hydrology:

The western boundary of Unit 10a is next to a Class II stream. Unit 10b lies between the Class II stream and a Class III tributary. A smaller Class III stream flows through the northwest corner of Unit 10b.

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class II HC3: no harvest within the greater of 100 feet or the V-notch; manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Class II MC2: no harvest within the greater of 100 feet or the channel sideslope break required; manage a reasonable distance (site potential tree height is 100 feet) beyond the slopebreak for windfirmness.

Class II MC2: no harvest within the greater of 100 feet or the channel sideslope break required; manage a reasonable distance (site potential tree height is 100 feet) beyond the slopebreak for windfirmness.

Class III HC6: no timber harvest within the V-notch, manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Class III HC6: no timber harvest within the V-notch, manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Class III HC2: no timber harvest within the V-notch, manage a reasonable distance (site potential tree height is 120 feet) beyond the slopebreak for windfirmness.

Follow BMPs 12.6, 12.6a and 13.16.

Silvicultural Prescription:

Unit 10b & 10c: Single-tree selection (28 acres)

Use single-tree selection to remove approximately 50 percent of the basal area using a prescription similar to that listed below. The reason for the selection cut is to maintain the roadless character of the Cleveland Peninsula by implementing an

uneven-aged system that retains a forested appearance on all acres not accessible by road unless the acres have clearcut justification.

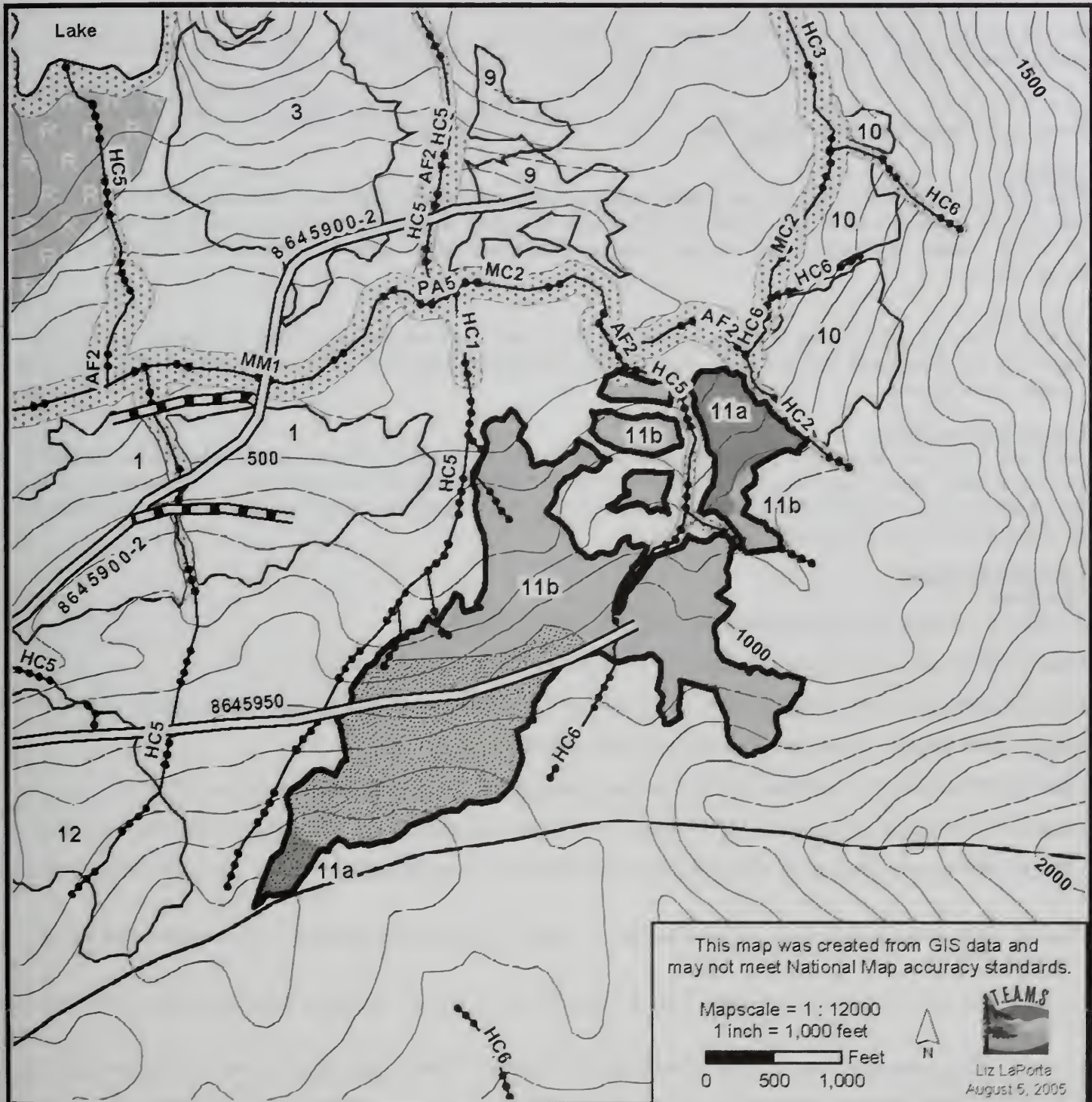
Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+.

Unit 10a: Patch Clearcut (approximately 2 acres)

This stand has moderate Alaska yellow-cedar decline. Clearcutting prevents financial losses by salvaging expected mortality caused by this disease.

Logging System and Unit Design:

Helicopter yard to road.



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| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (11a) | High Value Marten | AHMU Stream Class II |
| Clear Cut (11b) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 11

Harvest Acres:	118	MBF Volume:	3,879	CCF Volume:	7,758
Aerial Photo:	1973	Flight #:	29	Photo #:	31

Resource Concerns and Mitigation

Wildlife:

This unit includes 45 acres of high-value marten habitat; 42 acres to be clearcut and 3 acres of single-tree selection. Marten guidelines to apply in clearcut area: maintain 10-20 percent of original stand structure, average four large trees/acre (20-30"+ dbh), average three snags per acre, average three pieces downed logs/acre (20-30"+ dbh) (W28). Unit is adjacent to old-growth reserve.

Wetlands:

There are approximately 30 acres of Forested Wetlands on mineral soils in the east end of Unit 11. Partial suspension is required in this area (BMPs 12.5 and 13.9). The tall sedge fen adjacent to Birch Creek is in the riparian buffer zone and is excluded from harvest.

Landslide-prone Soils:

Slopes are dominantly less than 60 percent gradient in Unit 11 and no slopes over 72 percent were identified. The mass movement index ranges from low to high in the unit and partial suspension is required (BMP 13.9). Soils mapped in the west end of the unit are relatively deep and somewhat erodible. Areas disturbed during logging should be revegetated as soon as possible to prevent erosion (BMP 12.17).

Fisheries/Hydrology:

Mitigation:

A windfirm boundary needs to be established next to the no-cut buffer.

Class III HC6 adjacent to northeast unit boundary: no timber harvest within the V-notch. (F1, F2)

Class III HC5 flows north through unit: no timber harvest within the V-notch. Slope break buffer required. (F1, F2)

Class IV HC5 adjacent to west unit boundary. Directional felling required. (F3)

Class III HC5 tributary to the Class III HC5 flows north through unit. Slope break buffer required. (F1, F2)

Class IV HC5 which is the upper reaches of Class III HC5 flows north through unit. Directional felling required. (F3)

Class IV HC5 upper reaches of the tributary of the Class III HC5 flows north through the unit. Directional felling required. (F3)

Class IV HC5 northernmost tributary of the Class IV HC5 which follows western boundary. Directional felling where practical. (F3)

Class IV HC5 center tributary of the Class IV HC5 which follows the western boundary. Directional felling where practical. (F3)

Class IV HC5 the southern-most tributary of the Class IV HC5 which follows the western boundary. Directional felling where practical. (F3)

Silvicultural Prescription:

Unit 11a: Single-tree selection (12 acres)

Use single-tree selection to remove approximately 50 percent of the basal area using a prescription similar to that listed below. The reason for the selection cut is to maintain the roadless character of the Cleveland Peninsula by implementing an uneven-aged system that retains a forested appearance on all acres not accessible by road unless the acres have clearcut justifications.

Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+.

Unit 11b: Clearcut (Approximately 106 acres: 97 continuous acres and 4 patch cuts totaling 9 acres)

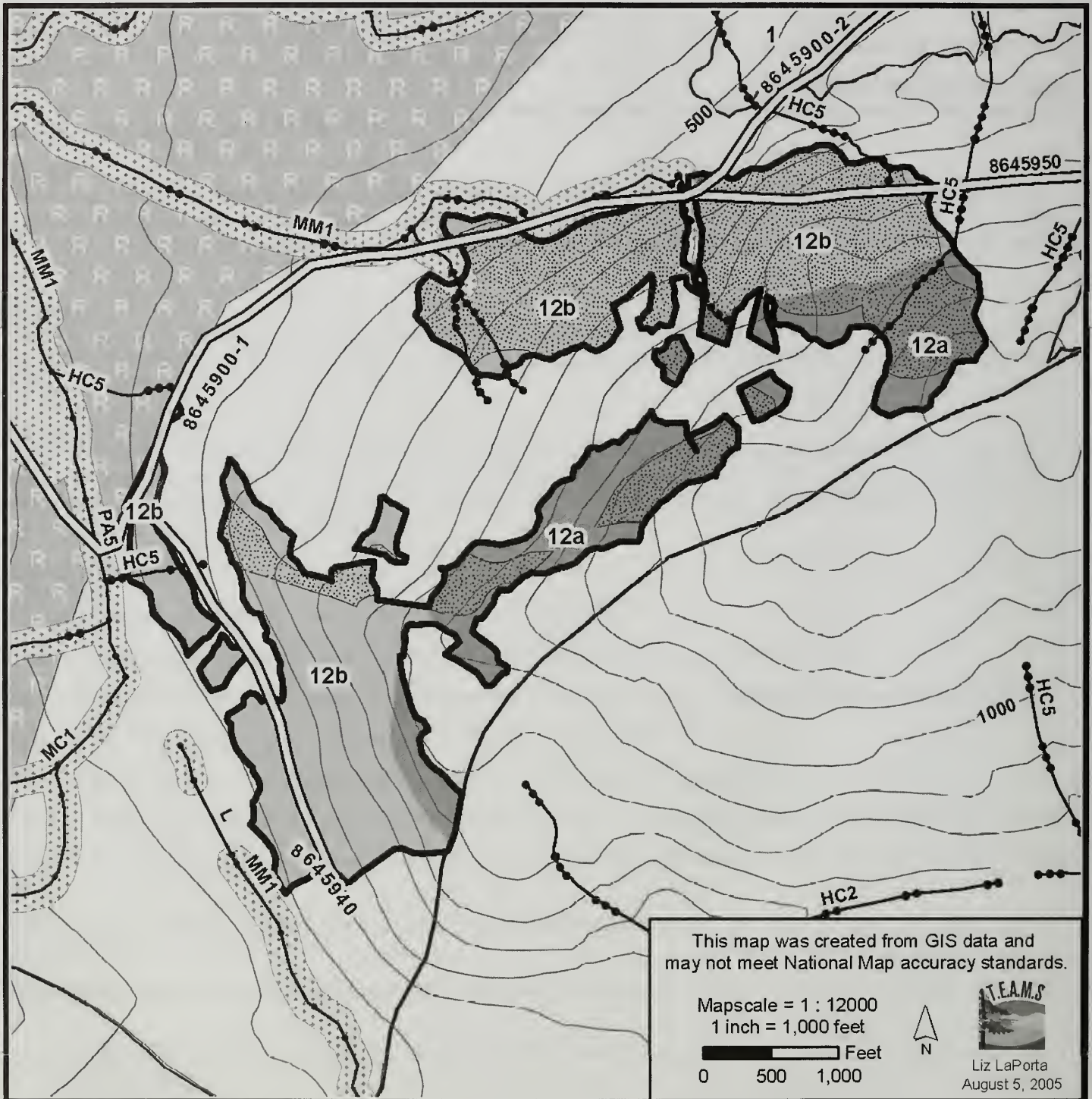
This stand has moderate dwarf mistletoe in the western hemlock. Clearcutting checks the spread of this disease and future timber volume losses to the new understory trees.

This stand has moderate Alaska yellow-cedar decline. Clearcutting prevents financial losses by salvaging expected mortality caused by this disease.

No created openings over 100 acres.

Logging System and Unit Design:

Helicopter yard 17 acres to road and cable yard remainder of unit.



- | | | |
|-----------------------------|-----------------------------------|-----------------------|
| Selected Unit Boundary | Other Alternative Units | AHMU Stream Class I |
| Single Tree Selection (12a) | High Value Marten | AHMU Stream Class II |
| Clear Cut (12b) | Riparian Management Area | AHMU Stream Class III |
| Proposed System Road | Old Growth Reserve LUD | AHMU Stream Class IV |
| Proposed Temporary Road | Contour Lines (100 foot interval) | |

Emerald Bay Project Area ROD Unit Card

Unit 12

Harvest Acres:	<u>208</u>	MBF Volume:	<u>6,264</u>	CCF Volume:	<u>12,528</u>
Aerial Photo:	<u>1973</u>	Flight #:	<u>28</u>	Photo #:	<u>217</u>

Resource Concerns and Mitigation

Wildlife:

This unit includes 106 acres of high-value marten habitat; 76 acres to be clearcut and 30 acres of single-tree selection. Marten guidelines to apply in clearcut area: maintain 10-20 percent of original stand structure, average four large trees/acre (20-30"+ dbh), average three snags per acre, average three pieces downed logs/acre (20-30"+ dbh) (W28).

Mitigation:

Modify the unit boundary to exclude brown bear foraging habitat. A 500-foot no-harvest area needs to be implemented on the middle reach of Emerald Creek (Class I PA5).

Wetlands:

The unit boundary has been modified to avoid timber harvest on forested organic soils per the Forest Plan ROD. The southern quarter of Unit 12 lies on Forested Wetlands. Partial suspension is required (BMP 12.5 & 13.9). Most of the unit is underlain by well-drained upland soils.

Landslide-prone Soils:

Slopes in Unit 12 range from 20 up to 70 percent gradient. No slopes over 72 percent were identified. The landslide potential ranges from low to high. Partial suspension is required to mitigate landslide and erosion potential (BMP 13.9). Soils under much of the unit are deep and somewhat erodible. Revegetation of any areas disturbed during yarding should be completed as soon as possible (BMP 12.17).

Fisheries/Hydrology:

Mitigation:

Class I MC1 Emerald Creek lower reach adjacent to west boundary: no harvest within the greater of 100 feet or the channel sideslope break required; manage a reasonable distance of one potential site tree height (~100 feet) beyond the slopebreak for windfirmness. (F1, F2)

Class I PA5 Emerald Creek middle reach adjacent to west boundary: greater of 100-foot or RMA buffer required; manage a reasonable distance of one potential site tree height (~85 feet) beyond the slopebreak for windfirmness. (F1, F2)

Class I MMI Emerald Creek upper reach adjacent to west boundary: greater of 120-foot or RMA buffer required; manage a reasonable distance of one potential site tree height (~120 feet) beyond the slopebreak for windfirmness. (F1, F2)

Class IV MC5 tributary to Emerald Creek flows through western portion of unit. Directional felling where practical. (F3)

Class II MMI parallel to the north boundary: 100-foot no-cut buffer required. (F1, F2)

Class II MMI tributary to Class II MMI: 120-foot no-cut buffer required. (F1, F2)

Class III HC5 upper reach of Class II MMI parallel to north boundary. Slope break buffer required. (F1, F2)

Class IV HC5 eastern upper reach of Class II MMI, that exists at NW tip of unit. Directional felling where practical. (F3)

Class IV HC5 western upper reach of Class II MMI, that exists at NW tip of unit. Directional felling where practical. (F3)

Class IV HC5 upper reach of Class III HC5. Slope break buffer required. (F19, F2)

Class IV HC5 exits northern tip of unit. Directional felling where practical. (F3)

Class IV HC5 bisects eastern most portion of unit. Directional felling where practical. Follow BMPs 12.6, and 13.16. (F3)

Silvicultural Prescription:

Unit 12a: Single-tree selection (61 acres)

Use single-tree selection to remove approximately 50 percent of the basal area using a prescription similar to that listed below. The reason for the selection cut is to maintain the roadless character of the Cleveland Peninsula by implementing an

uneven-aged system that retains a forested appearance on all acres not accessible by road unless the acres have clearcut justifications.

Leave: All western redcedar, Sitka spruce, western hemlock, mountain hemlock and Alaska yellow-cedar trees in the following classes, dbh: 0-15", 25-33", and 45"+.

Unit 12b: Clearcut approximately 147 acres (3 separate areas totaling 142 acres and 2 patch cuts totaling 5 acres)
Clearcutting is necessary to rehabilitate this stand's moderate past porcupine stem damage.

No created openings over 100 acres.

Logging System and Unit Design:

Helicopter yard 84 acres to the road.

Cable yard the remainder of the unit.

Appendix 2

Road Cards

Appendix 3

Field Notes

Appendix 2

Road Cards

Best Management Practices and Forest Plan Standards and Guidelines

The general measures described in Introduction to Appendix 1, Unit Cards, apply to all units and roads in the Emerald Bay project. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook). Measures with application to a particular road are listed on the individual road cards as Site-specific Design Criteria.

General Design Criteria and Elements are shown on the Road Management Objectives portion of the road cards and are defined as follows:

- Functional Class: Local (L), Collector (C), and Arterial (A) classifications
- Service Life: Long (L) or Short (S), Constant (C), or Intermittent (I), consistent with NEPA disclosure document.
- Traffic Service Level: Traffic Service Level anticipated for the design (C or D) that takes into consideration the characteristics of the road and operating conditions.

Operational Maintenance Level designates maintenance level applied during the current operating condition (for instance, during harvest). Operational Maintenance Levels incorporate Traffic Service Levels, as indicated in the following definitions. Applicable maintenance levels for the project area are:

- Maintenance Level 1 (Traffic Service Level D) - Roads are closed by bridge removal or organic encroachment and are monitored for resource protection. Basic custodial maintenance is performed to perpetuate the road and to facilitate future management activities.
- Maintenance Level 2 (Traffic Service Level C) - Roads are maintained for high-clearance vehicles and monitored for resource protection. Traffic would be minor, consisting of administrative uses.

Objective Maintenance Level designates the maintenance level necessary to achieve the desired future condition of the road.

Highway Safety Act: applies to roads open to general public without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. It is not applicable to roads proposed for this project.

Critical Vehicle: the largest vehicle (by weight, size, or unique shape) whose limited use on the road is necessary to complete the planned activity.

Design Vehicle: the vehicle frequently using the road that determines the minimum standard for a particular design element – passenger car, pickup, logging truck, lowboy, rock truck or yarding equipment.

AFRPR Status: Alaska Forest Resource Protection Regulation

Appendix 5

Read Cards

Appendix 2

Road Cards

Best Management Practices and Forest Plan Standards and Guidelines

The general measures described in Introduction to Appendix 1, Unit Cards, apply to all units and roads in the Emerald Bay project. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook). Measures with application to a particular road are listed on the individual road cards as Site-specific Design Criteria.

General Design Criteria and Elements are shown on the Road Management Objectives portion of the road cards and are defined as follows:

- Functional Class: Local (L), Collector (C), and Arterial (A) classifications
- Service Life: Long (L) or Short (S), Constant (C), or Intermittent (I), consistent with NEPA disclosure document.
- Traffic Service Level: Traffic Service Level anticipated for the design (C or D) that takes into consideration the characteristics of the road and operating conditions.

Operational Maintenance Level designates maintenance level applied during the current operating condition (for instance, during harvest). Operational Maintenance Levels incorporate Traffic Service Levels, as indicated in the following definitions. Applicable maintenance levels for the project area are:

- Maintenance Level 1 (Traffic Service Level D) - Roads are closed by bridge removal or organic encroachment and are monitored for resource protection. Basic custodial maintenance is performed to perpetuate the road and to facilitate future management activities.
- Maintenance Level 2 (Traffic Service Level C) - Roads are maintained for high-clearance vehicles and monitored for resource protection. Traffic would be minor, consisting of administrative uses.

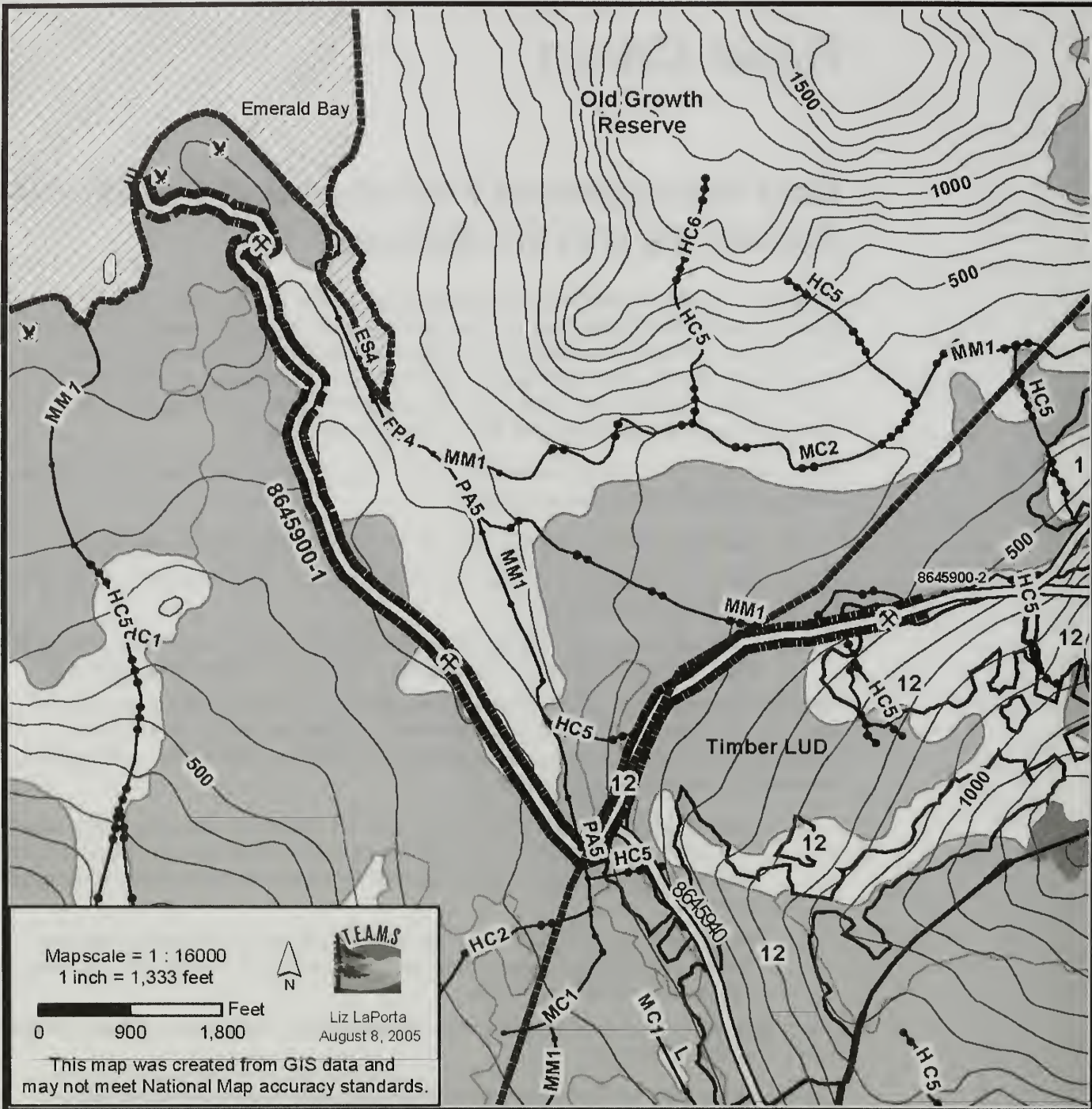
Objective Maintenance Level designates the maintenance level necessary to achieve the desired future condition of the road.

Highway Safety Act: applies to roads open to general public without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. It is not applicable to roads proposed for this project.

Critical Vehicle: the largest vehicle (by weight, size, or unique shape) whose limited use on the road is necessary to complete the planned activity.

Design Vehicle: the vehicle frequently using the road that determines the minimum standard for a particular design element – passenger car, pickup, logging truck, lowboy, rock truck or yarding equipment.

AFRPR Status: Alaska Forest Resource Protection Regulation



Mapscale = 1 : 16000
1 inch = 1,333 feet

0 900 1,800 Feet



Liz LaPorta
August 8, 2005

This map was created from GIS data and
may not meet National Map accuracy standards.

- Proposed System Road
- Selected Road
8645900-1 = 2.74 miles
- High Value Wetlands
- Other Wetlands
- Unit Boundary

- Contour Lines (100 foot interval)
- AHMU Stream Class I
- AHMU Stream Class II
- AHMU Stream Class III
- AHMU Stream Class IV

- Old Growth Reserve
- Salt Water
- Rock Source
- Log Transfer Facility (LTF)
- Eagle Tree

Road Management Objectives

Road No. 8645900-1

Project/EIS	System	Land Use Designation	
Emerald Bay	Cleveland Peninsula	OGR/TM	
Route No.	Route Name	Status	
8645900-1	Emerald	New construction	
Begin Milepost	Length (miles)	Begin Termini	End Termini
0.00	2.74	0.00	2.74

General Design Criteria and Elements

Functional Class	Service Life	Traffic Service Level	Surface	Width	Critical Vehicle	Design Vehicle	Design Speed
L	LI	D	Rock	14 feet	Log truck	Log truck	10 mph

Intended Purpose/Future Use: Silvicultural activities

Maintenance Criteria

Operational Maintenance Level: 2

Objective Maintenance Level: 1

Maintenance Narrative:

Operation Criteria

Highway Safety Act: No

Jurisdiction: National Forest System ownership

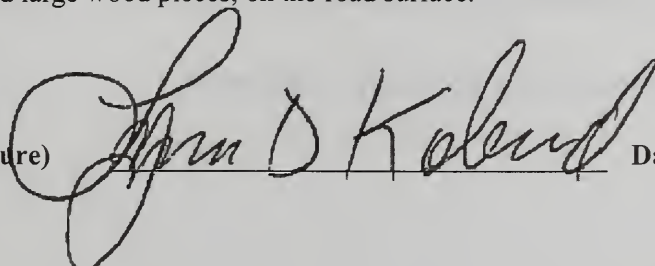
AFRPR Status: Closed

Travel Management Strategies

Encourage:	N/A
Accept:	Hikers, Bicycles
Discourage:	N/A
Prohibit:	N/A
Eliminate:	All motorized use including OHVs (waterbars, pull bridges and culverts)

Travel Management Narrative: This road would be closed to all public motorized use during the life of the timber sale. Remove all bridges and drainage structures upon completion of harvest activities. Waterbar and grass seed entire roadway. Closure should be adequate to eliminate all motorized use, including OHVs, from crossing streams and wetlands and using the road. In addition, the first section of the road, within beach sight distance, would be covered through the placement of debris, such as rocks, root wads, and large wood pieces, on the road surface.

District Ranger Approval (signature)



Date:

9/8/05

Road Management Objectives

Site-specific Design Criteria

Road No. 8645900-1

Road Location: Road accesses Units 1 and 12. Road construction should be moderate to easy over most portions of the road. Road located to accommodate logging systems and still have least impact on the other resources. There are no sections where road location crosses steep slopes over 67 percent. Log Transfer Facility (LTF), sortyard and logging camp would be located on this road. Road constructed to be minimal impact, 14 feet wide, outsloped with no ditch except in turnout areas. Class I, II, and III drainage crossings shall be with log-stringer bridges. Class IV and crossdrains will use culverts. In-stream construction on Class I streams will be restricted between June 15 to August 7.

Wetlands: Approximately 60 percent of this section of the 8645900 road is located on wetlands. Wetlands are unavoidable while avoiding the floodplain and adjacent sloping ground (BMPs 12.5 and 14.2 and CFR BMP 1). The wetlands crossed are a complex of forested wetlands, scrub-shrub evergreen wetlands, and poor fens. A rock pit will likely need to be developed on a wetland site as upland sites are not available (BMP 14.2 and CFR BMPs 4 and 5). Few crossdrains will be necessary on the first mile of road as it is located on a topographic rise (BMP 14.2). The road is planned for closure following harvest by means of removing all drainage structures (BMP 14.22 and CFR BMPs 2 and 7). Closure should be adequate to eliminate all motorized use including OHVs from crossing streams and wetlands and using the road. In addition, the first section of the road, within beach sight distance, would be covered through the placement of debris, such as rocks, root wads, and large wood pieces, on the road surface. This road meets the requirements for the silvicultural exemption from the 404 permitting process.

Road location was completed to avoid wetlands, although wetlands were unavoidable on approximately 60 percent of the entire length of the proposed road due to safety considerations, engineering design constraints and considerations for other resources.

Erosion Control: An erosion control plan for construction and maintenance will be developed by the contractor and approved by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.17 and 14.8).

Rock Pits: Three rock pits will be located adjacent to this section of road. Timing will be required on all rock pit and road right-of-way blasting within 1/2 mile of eagle nests.

Resource Information (If applicable):

Timber/Logging Systems: Low-impact road design to shorten helicopter-yarding distances.

Soils/Water: Road crosses wetlands on gentle slopes for approximately 60 percent of its length (BMP 14.7). Apply BMPs 12.5 and 14.2 and CFR BMPs 1, 2, 5, 6, 7, and 14. Keep clearing widths narrow outside of harvest units (CFR BMP 6). Use BMP 14.12 to control excavation of sidecast material and overburden from the rock pit.

Silviculture: Increases the regeneration monitoring cost.

Lands/Minerals/Geology/Karst: No resource concerns are identified.

Wildlife: Road crosses a medium Old-growth Habitat LUD and estuary buffer – limit tree removal and disturbance to the minimum amount possible. Road and LTF are within the 330-foot eagle nest buffer, first rock source is within the 1/2 mile blasting restriction zone, and sortyard may be within the 1/4 mile helicopter flight restriction; timing restrictions apply March 1 through August 31 (see ROD). To minimize wildlife disturbance, this road would be closed to all public motorized use during and after the timber sale.

Visual/Recreation: This road would be closed to all public motorized use during and after the timber sale.

Cultural: If any cultural resource sites are encountered, activities are to stop in the vicinity of the find and notify the archaeologist.

Botanical: No impacts to botanical resources are anticipated.

Road Management Objectives

Stream Crossings

Road No. 8645900-1

A.) M.P. 1.62	AHMU Class I	Channel Type: PA5	BF Width: 1.5 m	BF Depth: 15 cm	Substrate: cobbles
Gradient: 10%	Structure: log-stringer	Passage Req'd.: yes	Timing Dates: June 15 to August 7		
Narrative:					
B.) M.P. 1.70	AHMU Class IV	Channel Type: HC5	BF Width: 0.3 m	BF Depth: 5 cm	Substrate: bdrk
Gradient: 19%	Structure: culvert	Passage Req'd.: no	Timing Dates: none		
Narrative:					
C.) M.P. 2.45	AHMU Class II	Channel Type: MC1	BF Width: 0.5 m	BF Depth: 15 cm	Substrate: bdrk
Gradient: 6-8%	Structure: log-stringer	Passage Req'd.: yes	Timing Dates: none		
Narrative:					

Acronyms and terms used in Road Cards Road Management Objectives:

M.P.: milepost where the stream crossing occurs.

AHMU: Anadromous Habitat Management Unit

Channel Type: stream segments which have fairly consistent physical characteristics. See also Unit Cards, page A1-6.

BF Width/Depth: bankfull width or depth, the width and depth of the stream course at peak flow.

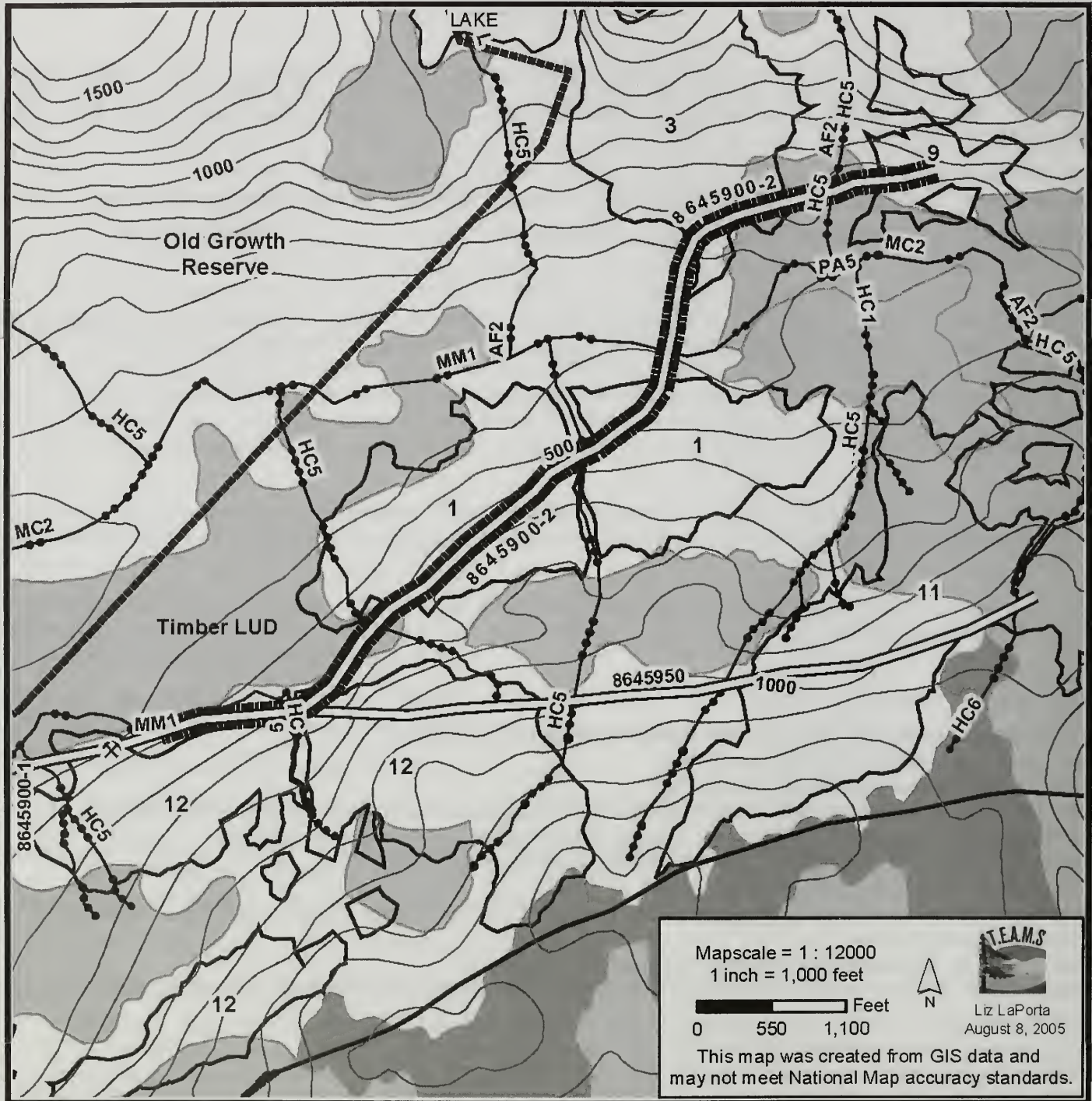
Substrate: bdrk = bedrock; cobbles = small stones approximately 6 to 12 inches across.

Gradient: the steepness (grade) of the stream bed.

Structure: type of structure to accommodate stream flow. All Class I-III streams will have log-stringer bridges and all Class IV will use culverts.

Passage Req'd: whether or not fish passage is required at this crossing.

Timing Dates: the dates construction windows are required to accommodate fish spawning and rearing periods.



- | | | |
|---|-----------------------------------|-----------------------------|
| Proposed System Road | Contour Lines (100 foot interval) | Old Growth Reserve |
| Selected Road
8645900-2 = 1.56 miles | AHMU Stream Class I | Salt Water |
| High Value Wetlands | AHMU Stream Class II | Rock Source |
| Other Wetlands | AHMU Stream Class III | Log Transfer Facility (LTF) |
| Unit Boundary | AHMU Stream Class IV | Eagle Tree |

Road Management Objectives

Road No. 8645900-2

Project/EIS Emerald Bay	System Cleveland Peninsula	Land Use Designation TM
Route No. 8645900-2	Route Name Ruby	Status New construction
Begin Milepost 0.00	Length (miles) 1.56	Begin Termini 2.74
		End Termini 4.30

General Design Criteria and Elements

Functional Class L	Service Life LI	Traffic Service Level D	Surface Rock	Width 14 feet	Critical Vehicle Log truck	Design Vehicle Log truck	Design Speed 10 mph
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Intended Purpose/Future Use: Silvicultural activities

Maintenance Criteria

Operational Maintenance Level 2 **Objective Maintenance Level** 1

Maintenance Narrative:

Operation Criteria

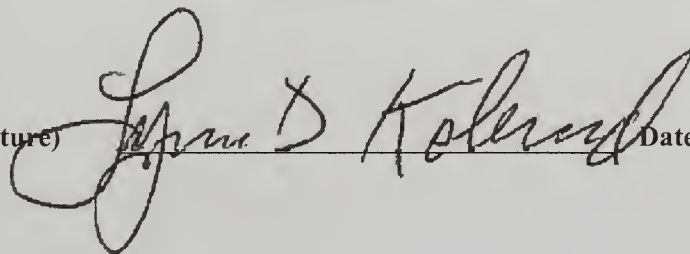
Highway Safety Act: No **Jurisdiction:** National Forest System ownership **AFRPR Status:** Closed

Travel Management Strategies

Encourage:	N/A
Accept:	Hikers, Bicycles
Discourage:	N/A
Prohibit:	N/A
Eliminate	All motorized use including OHVs (waterbars, pull bridges and culverts)

Travel Management Narrative: This road would be closed to all public motorized use during the life of the timber sale. Remove all bridges and drainage structures upon completion of harvest activities. Waterbar and grass seed entire roadway. Closure should be adequate to eliminate all motorized use, including OHVs, from crossing streams and wetlands and using the road.

District Ranger Approval (signature)



Date:

9/8/05

Road Management Objectives

Site-specific Design Criteria

Road No. 8645900-2

Road Location: Road accesses Units 12, 9, 10, and 3. Road construction should be moderate to easy over most portions of the road. Road located to accommodate logging systems and still have least impact on the other resources. There are no sections where road location crosses steep slopes over 67 percent. Class I, II, and III drainage crossings shall be with log-stringer bridges. Class IV and crossdrains will use culverts. Except for stream crossings, the road is located outside riparian management area buffers.

Wetlands: Road 8645900-2 crosses approximately 0.26 mile of forested wetland and 0.64 mile of forested wetland and nonforested non-wetland complex. The wetlands are unavoidable while accessing harvest units (BMP 12.5 and CFR BMPs 1 and 2). Limit excavation of sidecast material to the road corridor (BMP 14.12). The road includes a crossing on Birch Creek, a Class II fish stream. Fish passage is planned (CFR BMP 7). Rock pits need to be located outside wetland areas (BMP 12.5 and CFR BMP 8). Minimize clearing widths in wetlands outside harvest units (CFR BMPs 5 and 6). The road is planned for closure following harvest by means of removing all drainage structures (BMP 14.22 and CFR BMPs 2 and 7). Closure should be adequate to eliminate all motorized use including OHVs from crossing streams and wetlands and using the road. This road meets the silvicultural exemption from the 404 permitting process.

Road was located to avoid wetland areas wherever practicable, although wetlands were unavoidable (M.P. 0.40 to 0.43 and 1.40 to 1.49) due to safety considerations, engineering design constraints and considerations for other resources.

Erosion Control: An erosion control plan for construction and maintenance will be developed by the contractor and approved by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.17 and 14.8).

Rock Pits: As shown on the map, no major concerns. Timing will be required on all rock pit and road right-of-way blasting within 1/2 mile of known eagle nests.

Resource Information (If applicable):

Timber/Logging Systems: No resource concerns are identified.

Soils/Water: Road 8645900-2 traverses relatively stable slopes (BMPs 14.2 and 14.7). The crossing on Birch Creek is in a stable location. Use BMP 14.14 to minimize in-channel operations. The road should be located upslope of the colluvial/alluvial fan formed by the stream between Units 3 and 9 (BMP 14.2). Remove drainage structures on this stream following harvest (BMPs 14.17 and 14.22). Close road in such a way as to discourage all motorized use, including OHVs, in and adjacent to streams and wetlands (BMP 14.22).

Silviculture: Increases the regeneration monitoring cost

Lands/Minerals/Geology/Karst: No resource concerns are identified.

Wildlife: To minimize disturbance, this road would be closed to all public motorized use during and after the timber sale.

Visual/Recreation: This road would be closed to all public motorized use during and after the timber sale.

Cultural: If any cultural resource sites are encountered, stop activities in the vicinity of the find and notify the archaeologist.

Botanical: No impacts to botanical resources are anticipated.

Road Management Objectives

Stream Crossings

Road No. 8645900-2

A.) M.P. 0.25 Gradient: 22% Narrative:	AHMU Class IV Structure: culvert	Channel Type: HC5 Passage Req'd.: no	BF Width: 0.4 m BF Depth: 3 cm Timing Dates: none	Substrate: bdrk
B.) M.P. 0.47 Gradient: 22% Narrative:	AHMU Class IV Structure: culvert	Channel Type: HC5 Passage Req'd.: no	BF Width: 0.4 m BF Depth: 3 cm Timing Dates: none	Substrate: bdrk
C.) M.P. 0.85 Gradient: 6% Narrative:	AHMU Class III Structure: log-stringer	Channel Type: HC5 Passage Req'd.: no	BF Width: 3 m BF Depth: 3 cm Timing Dates: none	Substrate: bdrk
D.) M.P. 1.05 Gradient: 6% Narrative:	AHMU Class II Structure: log-stringer	Channel Type: MM1 Passage Req'd.: yes	BF Width: 8 m BF Depth: 24 cm Timing Dates: none	Substrate: cobbles
E.) M.P. 1.49 Gradient: 18% Narrative:	AHMU Class III Structure: log-stringer	Channel Type: HC5 Passage Req'd.: no	BF Width: 3.0 m BF Depth: 3 cm Timing Dates: none	Substrate: bdrk

Acronyms and terms used in Road Cards Road Management Objectives:

M.P.: milepost where the stream crossing occurs.

AHMU: Anadromous Habitat Management Unit

Channel Type: stream segments which have fairly consistent physical characteristics. See also Unit Cards, page A1-6.

BF Width/Depth: bankfull width or depth, the width and depth of the stream course at peak flow.

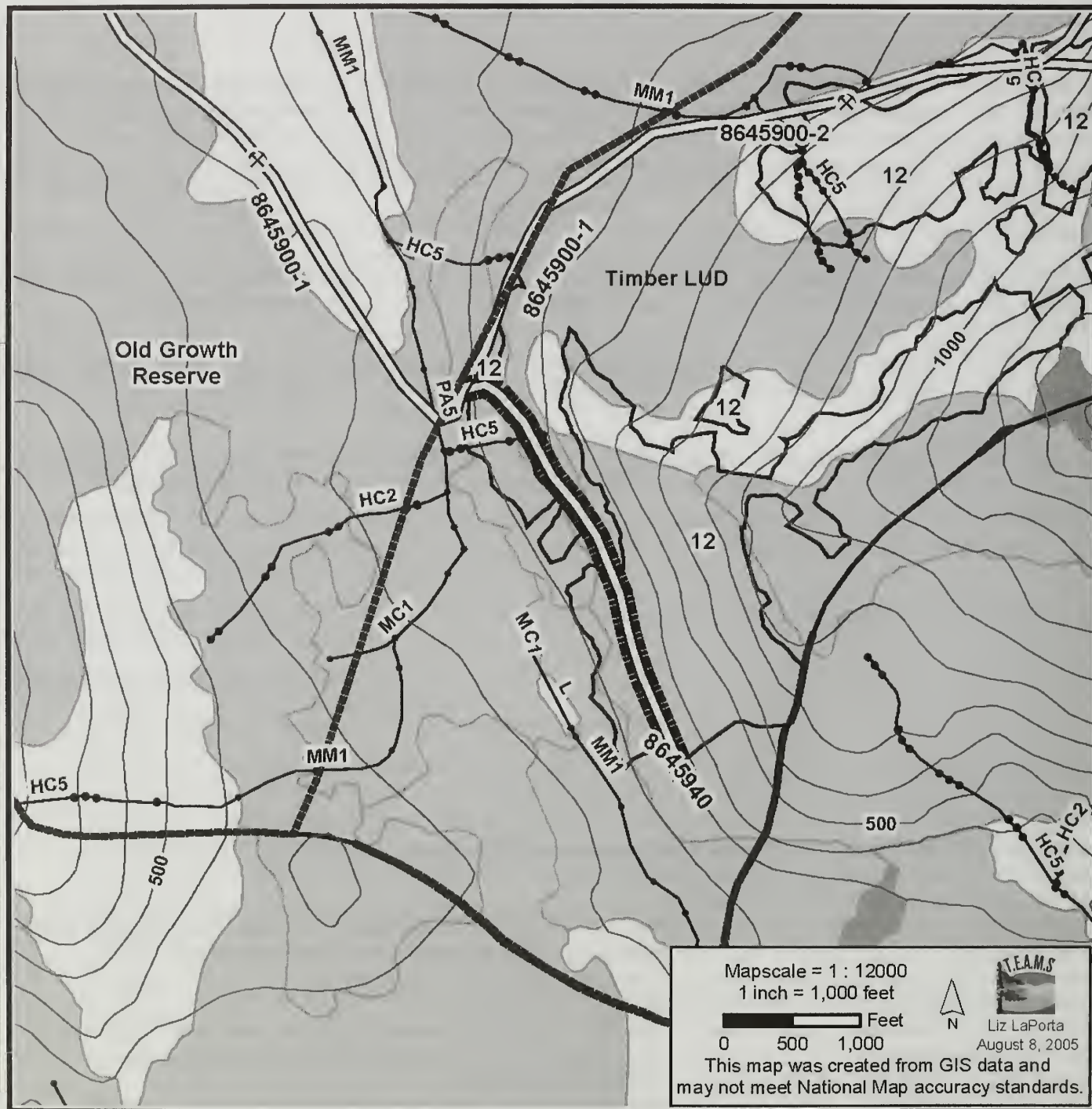
Substrate: bdrk = bedrock; cobbles = small stones approximately 6 to 12 inches across.

Gradient: the steepness (grade) of the stream bed.

Structure: type of structure to accommodate stream flow. All Class I-III streams will have log-stringer bridges and all Class IV will use culverts.

Passage Req'd: whether or not fish passage is required at this crossing.

Timing Dates: the dates construction windows are required to accommodate fish spawning and rearing periods.



- | | | |
|---------------------------------------|-----------------------------------|-----------------------------|
| Proposed System Road | Contour Lines (100 foot interval) | Old Growth Reserve |
| Selected Road
8645940 = 0.43 miles | AHMU Stream Class I | Salt Water |
| High Value Wetlands | AHMU Stream Class II | Rock Source |
| Other Wetlands | AHMU Stream Class III | Log Transfer Facility (LTF) |
| Unit Boundary | AHMU Stream Class IV | Eagle Tree |

Road Management Objectives

Road No. 8645940

Project/EIS Emerald Bay	System Cleveland Peninsula	Land Use Designation TM	
Route No. 8645940	Route Name Ruby	Status New construction	
Begin Milepost 0.00	Length (miles) 0.43	Begin Termini 0.00	End Termini 0.43

General Design Criteria and Elements

Functional Class L	Service Life LI	Traffic Service Level D	Surface Rock	Width 14 feet	Critical Vehicle Log truck	Design Vehicle Log truck	Design Speed 10 mph
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Intended Purpose/Future Use: Silvicultural activities

Maintenance Criteria

Operational Maintenance Level 2

Objective Maintenance Level 1

Maintenance Narrative:

Operation Criteria

Highway Safety Act: No

Jurisdiction: National Forest System ownership

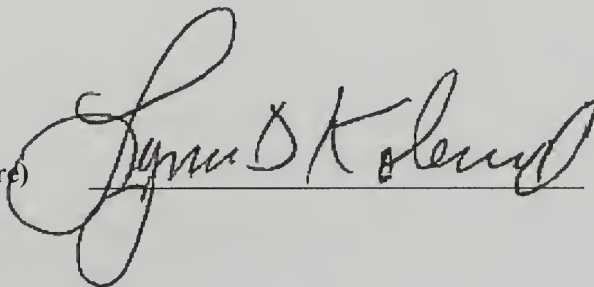
AFRPR Status: Closed

Travel Management Strategies

Encourage:	N/A
Accept:	Hikers, Bicycles
Discourage:	N/A
Prohibit:	N/A
Eliminate	All motorized use including OHVs (waterbars, pull bridges and culverts)

Travel Management Narrative: This road would be closed to all public motorized use during the life of the timber sale. Remove all bridges and drainage structures upon completion of harvest activities. Waterbar and grass seed entire roadway. Closure should be adequate to eliminate all motorized use, including OHVs, from crossing streams and wetlands and using the road.

District Ranger Approval (signature)



Date:

9/8/05

Road Management Objectives

Site-specific Design Criteria

Road No. 8645940

Road Location: Road accesses Unit 12 (south end). Road construction should be moderate to easy over most portions of the road. Road located to accommodate logging systems and still have least impact on the other resources. There are no sections where road location crosses steep slopes over 67 percent.

Wetlands: Road 8645940 is located entirely on forested wetlands within Unit 12. The wetlands are part of the harvest unit and unavoidable (BMPs 12.5 and 14.2 and CFR BMPs 1 and 2). Borrow material may need to come from a rock pit in wetlands, the same pit that serves the 8645900-1. Clean fill will be used (CFR BMP 14). The road is planned for closure following harvest by means of removing all drainage structures (BMP 14.22 and CFR BMPs 2 and 7). Closure should be adequate to eliminate all motorized use including OHVs from crossing streams and wetlands and using the road. This road meets the requirements for the silvicultural exemption from the 404 permitting process.

Road was located to avoid wetland areas wherever practicable, although wetlands were unavoidable, due to safety considerations, engineering design constraints and considerations for other resources. The entire proposed road is on designated wetlands.

Erosion Control: An erosion control plan for construction and maintenance will be developed by the contractor and approved by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.17, 14.8).

Rock Pits: As shown on the map, no major concerns. Timing will be required on all rock pit and road right-of-way blasting within 1/2 mile of known eagle nests.

Resource Information (If applicable):

Timber/Logging Systems: No resource concerns are identified.

Soils/Water: The 8645940 road is located on stable slopes (BMPs 14.2 and 14.7). Use BMP 14.12 to keep excavated material out of the riparian area surrounding the pond downslope of the road.

Silviculture: Increases the regeneration monitoring cost.

Lands/Minerals/Geology/Karst: No resource concerns are identified.

Wildlife: To minimize wildlife disturbance, this road would be closed to all public motorized use during and after the timber sale.

Visual/Recreation: This road would be closed to all public motorized use during and after the timber sale.

Cultural: If any cultural resource sites are encountered, stop activities in the vicinity of the find and notify the archaeologist.

Botanical: No impacts to botanical resources are anticipated.

Road Management Objectives

Stream Crossings

Road No. 8645940

A.) M.P. 0.15 AHMU Class IV Channel Type: HC5 BF Width: 0.3 m BF Depth: 5 cm Substrate: bdrk
Gradient: 19% Structure: culvert Passage Req'd.: no Timing Dates: none
Narrative:

Acronyms and terms used in Road Cards Road Management Objectives:

M.P.: milepost where the stream crossing occurs.

AHMU: Anadromous Habitat Management Unit

Channel Type: stream segments which have fairly consistent physical characteristics. See also Unit Cards, page A1-6.

BF Width/Depth: bankfull width or depth, the width and depth of the stream course at peak flow.

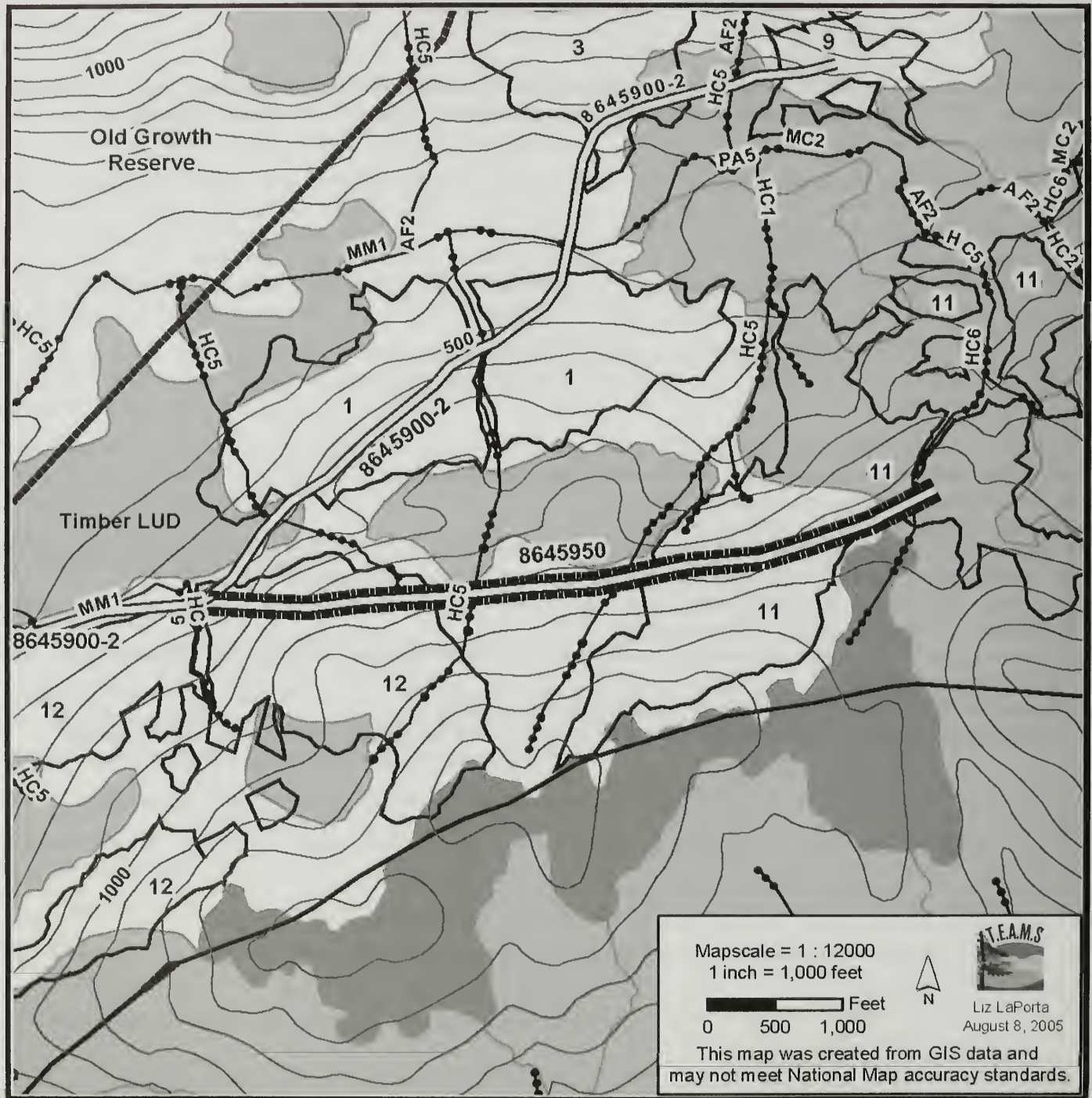
Substrate: bdrk = bedrock; cobbles = small stones approximately 6 to 12 inches across.

Gradient: the steepness (grade) of the stream bed.

Structure: type of structure to accommodate stream flow. All Class I-III streams will have log-stringer bridges and all Class IV will use culverts.

Passage Req'd: whether or not fish passage is required at this crossing.

Timing Dates: the dates construction windows are required to accommodate fish spawning and rearing periods.



Mapscale = 1 : 12000
1 inch = 1,000 feet

0 500 1,000 Feet

N

TEAMS
Liz LaPorta
August 8, 2005

This map was created from GIS data and may not meet National Map accuracy standards.

- | | | |
|---------------------------------------|-----------------------------------|-----------------------------|
| Proposed System Road | Contour Lines (100 foot interval) | Old Growth Reserve |
| Selected Road
8645950 = 1.05 miles | AHMU Stream Class I | Salt Water |
| High Value Wetlands | AHMU Stream Class II | Rock Source |
| Other Wetlands | AHMU Stream Class III | Log Transfer Facility (LTF) |
| Unit Boundary | AHMU Stream Class IV | Eagle Tree |

Road Management Objectives

Road No. 8645950

Project/EIS	System	Land Use Designation	
Emerald Bay	Cleveland Peninsula	TM	
Route No.	Route Name	Status	
8645950	Sapphire	New construction	
Begin Milepost	Length (miles)	Begin Termini	End Termini
0.00	1.05	0.00	1.05

General Design Criteria and Elements

Functional Class	Service Life	Traffic Service Level	Surface	Width	Critical Vehicle	Design Vehicle	Design Speed
L	LI	D	Rock	14 feet	Log truck	Log truck	10 mph

Intended Purpose/Future Use: Silvicultural activities

Maintenance Criteria

Operational Maintenance Level 2 **Objective Maintenance Level** 1

Maintenance Narrative:

Operation Criteria

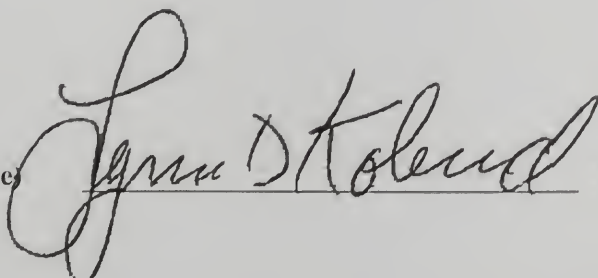
Highway Safety Act: No **Jurisdiction:** National Forest System ownership **AFRPR Status:** Closed

Travel Management Strategies

Encourage:	N/A
Accept:	Hikers, Bicycles
Discourage:	N/A
Prohibit:	N/A
Eliminate	All motorized use including OHVs (waterbars, pull bridges and culverts)

Travel Management Narrative: This road would be closed to all public motorized use during the life of the timber sale. Remove all bridges and drainage structures upon completion of harvest activities. Waterbar and grass seed entire roadway. Closure should be adequate to eliminate all motorized use, including OHVs, from crossing streams and wetlands and using the road.

District Ranger Approval (signature)



Date:

9/8/05

Road Management Objectives

Site-specific Design Criteria

Road No. 8645950

Road Location: Road accesses Units 11 and 12. Road construction should be moderate to easy over most portions of the road. Road located to accommodate logging systems and still have least impact on the other resources. There are no sections where road location crosses steep slopes over 67 percent. Class I, II, and III drainage crossings shall be with log-stringer bridges. Class IV and crossdrains will use culverts.

Wetlands: Less than 0.1 mile of the 8645950 road is located on forested wetlands in the east end of Unit 11. Wetlands were avoided in location (BMPs 12.5, 14.2 and CFR BMPs 1 and 2). The road is planned for closure following harvest by means of removing all drainage structures (BMP 14.22 and CFR BMPs 2 and 7). Closure should be adequate to eliminate all motorized use including OHVs from crossing streams and wetlands and using the road. Road 8645950 meets the requirements for the silvicultural exemption from the 404 permitting process.

Road was located to avoid wetland areas wherever practicable, although wetlands were unavoidable (M.P. 0.97 to M.P.1.05), due to safety considerations, engineering design constraints and considerations for other resources.

Erosion Control: An erosion control plan for construction and maintenance will be developed by the contractor and approved by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.17, 14.8).

Rock Pits: As shown on the map, no major concerns. Timing will be required on all rock pit and road right-of-way blasting within 1/2 mile of known eagle nests.

Resource Information (If applicable):

Timber/Logging Systems: No resource concerns are identified.

Soils/Water: Road 8645950 crosses relatively deep colluvial soils on moderate sideslopes. Use BMPs 14.8, 14.11 and 14.9 to minimize erosion potential. Road closure will involve removal of all drainage structures, and streambanks may need reshaping (BMPs 14.22 and 14.14). Timely grass seeding is important to minimize erosion from this road (BMPs 14.5 and 14.11).

Silviculture: Increases the regeneration monitoring cost

Lands/Minerals/Geology/Karst: No resource concerns are identified.

Wildlife: To minimize wildlife disturbance, this road would be closed to all public motorized use during and after the timber sale.

Visual/Recreation: This road would be closed to all public motorized use during and after the timber sale.

Cultural: If any cultural resource sites are encountered, stop activities in the vicinity of the find and notify the archaeologist.

Botanical: No impacts to botanical resources are anticipated.

Road Management Objectives

Stream Crossings

Road No. 8645950

A.) M.P. 0.35	AHMU Class IV	Channel Type: HC5	BF Width: 0.4 m	BF Depth: 3 cm	Substrate: bdrk
Gradient: 22%	Structure: culvert	Passage Req'd.: no		Timing Dates: none	
Narrative:					
B.) M.P. 0.50	AHMU Class IV	Channel Type: HC5	BF Width: 0.4 m	BF Depth: 3 cm	Substrate: bdrk
Gradient: 22%	Structure: culvert	Passage Req'd.: no		Timing Dates: none	
Narrative:					
C.) M.P. 0.97	AHMU Class III	Channel Type: HC5	BF Width: 1.5 m	BF Depth: 4 cm	Substrate: bdrk
Gradient: 16%	Structure: log-stringer	Passage Req'd.: no		Timing Dates: none	
Narrative:					

Acronyms and terms used in Road Cards Road Management Objectives:

M.P.: milepost where the stream crossing occurs.

AHMU: Anadromous Habitat Management Unit

Channel Type: stream segments which have fairly consistent physical characteristics. See also Unit Cards, page A1-6.

BF Width/Depth: bankfull width or depth, the width and depth of the stream course at peak flow.

Substrate: bdrk = bedrock; cobbles = small stones approximately 6 to 12 inches across.

Gradient: the steepness (grade) of the stream bed.

Structure: type of structure to accommodate stream flow. All Class I-III streams will have log-stringer bridges and all Class IV will use culverts.

Passage Req'd: whether or not fish passage is required at this crossing.

Timing Dates: the dates construction windows are required to accommodate fish spawning and rearing periods.

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Appendix 3

USFWS Variance Letter

Appendix A

NEW YORK STATE

Appendix 3

U.S. Fish and Wildlife Variance Letter



United States Department of the Interior
FISH AND WILDLIFE SERVICE
Office of Migratory Bird Management
Raptor Management Studies
3000 Vintage Blvd., Suite 240
Juneau, Alaska 99801-7100
(907) 780-1172

RECEIVED

SEP 12 2005

Ketchikan-Misty Fiords
Ranger District

September 9, 2005

Lynn D. Kolund
District Ranger
U.S. Forest Service
Ketchikan-Misty Fiords Ranger District
3031 Tongass Avenue
Ketchikan, Alaska 99901-5743

Dear Mr. Kolund:

This letter replies to your request for a variance to our bald eagle Memorandum of Understanding in order to conduct construction activities, blasting, and repeated helicopter flights near three bald eagle nest sites at Emerald Bay. In general, construction activities, blasting, and repeated helicopter flights should be kept as far away from nest trees as possible and conducted when eagles are not nesting - September 1 to February 28.

We have the following recommendations:

1. The early nesting period, during courtship and nest establishment, is the period when eagles are most sensitive to disturbance. In order to permit eagles to initiate nesting activities, construction of the proposed land to barge Log Transfer Facility and the log haul road within 330 feet of nest #81 should not take place from March 1 through May 31, and this period should continue to August 31 if the nest is in active use by eagles. If nest #81 is not in active use by May 31, construction activities within 330 ft could proceed throughout the remainder of the year.
2. Occasional helicopter flights (2-3 per day) within ¼ mile of an eagle nest during the March 1–May 31 period are unlikely to disrupt normal nesting activities at Emerald Bay; however, repeated helicopter operations should be avoided within ¼ mile of nests #81, #48, and #37 from March 1 through May 31. All helicopter flights should avoid coming within 330 ft of a nest during the entire nesting season, March 1 through August 31.
3. Your letter states the only identified rock source is located approximately ¼ mile from eagle nests #81 and #48, and within ½ mile of nest #37. The best procedure to avoid disturbance to nesting bald eagles from blasting is to not blast at the proposed rock source from March 1 through May 31, and continue this period to August 31 for nests in active use by eagles. If it is deemed necessary to blast during the nesting season, a Forest

Appendix 3

Service biologist or other observer familiar with eagle behavior should monitor the nests before, during, and after blasting to determine their use by eagles. If blasting causes an eagle to flush from a nest tree or leave the nest area, the disturbing activity should cease for the remainder of the day and actions taken to avoid flushing an eagle on subsequent days. Blasting should occur during the middle of the day and during periods of mild weather. Eagles are usually most active during the early morning and evening hours and disruption then is more likely to have adverse consequences. Displacing nesting eagles at night or during periods of heavy rain, high winds or unusually cold temperatures would be undesirable. If a nest is not in active use by May 31, the nest is considered inactive for the year, and no further monitoring is necessary. Results of eagle monitoring should be reported to our Juneau office.

If the above recommendations are carried out, the potential for disturbance to eagles will be reduced and the project should be able to proceed with a decreased risk of violating the Bald and Golden Eagle Protection Act. Once the proposed LTF and road are in place, we believe normal LTF operations and vehicle traffic within 330 ft of nest #81 can occur throughout the year with a reduced likelihood of bald eagle disturbance.

Thank you for your cooperation. Consider this letter as a variance to our Memorandum of Understanding to conduct LTF and road construction and operation activities within 330 ft of bald eagle nest #81, repeated helicopter flights within ¼ mile of nests #81 and #48, and blasting within ½ mile of nests #81, #48, and #37. This variance does not alleviate the U.S. Forest Service or its contractors of the responsibility to meet the requirements of the Bald and Golden Eagle Protection Act. Please contact me at (907) 780-1172 if you have any questions.

Sincerely,



Mike Jacobson
Eagle Management specialist

cc: Bruce Halstead
Sam Friberg, LE - FWS

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Final Supplemental Environmental Impact Statement Table 2.1

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Summary

Summary

Summary

Background

The Forest Service has complied with the National Environmental Policy Act (NEPA) and other relevant State and Federal laws and regulations in preparing this Final Supplemental Environmental Impact Statement (SEIS) on the potential effects of timber harvest in the Emerald Bay Timber Sale project area. The project area is located on the Cleveland Peninsula, on the Ketchikan–Misty Fjords Ranger District, Tongass National Forest (see Figure 1-1).

The Proposed Action and alternatives have remained consistent for this project although changing market conditions have caused the Preferred Alternative to change over time. Resource specialists analyzing the effects of the project determined that this constancy is necessary in order to understand the effects of a fluctuating economy on the project.

The Emerald Bay Timber Sale project first appeared on the Tongass National Forest quarterly Schedule of Proposed Actions in the spring of 1997. A Notice of Intent (NOI) to prepare an environmental impact statement (EIS) was published in the *Federal Register* August 17, 1998. The Draft EIS was released January 28, 2000 for public comment. The Draft EIS disclosed the potential effects of three alternatives.

The market price for timber declined substantially after the first economic analysis was completed. In March 2000, after the Draft EIS was released (January 28, 2000), but before the close of the public comment period, a fourth alternative was developed in response to public comment. The alternative would retain uneven-aged harvest, but improve economics by shortening helicopter flight distance with road construction to the project area and a land-to-barge LTF. This alternative was developed, in part, because further analysis of Alternative C had demonstrated it to be economically infeasible.

A public information meeting March 2, 2000 introduced Alternative D. A March 20, 2000 project update letter was sent to all agencies, organizations, and individuals on the project mailing list. This letter described Alternative D and extended the comment period on the Draft EIS to May 5, 2000.

Tongass Forest Supervisor Tom Puchlerz signed the Record of Decision (ROD) on October 23, 2001 for the Emerald Bay Timber Sale EIS, selecting Alternative D. The Notice of Availability for the EIS and ROD was published in the *Federal Register* November 2, 2001. The decision was reversed February 14, 2002 on appeal. The appeal deciding officer determined that the EIS did not adequately address effects to the Cleveland Roadless Area #528 values or wilderness eligibility.

The Draft Supplemental Environmental Impact Statement (SEIS) included more detail on the potential effects of the project alternatives on these resources. The availability of the Draft SEIS was published October 15, 2004 in the *Federal Register*. Comments on the Draft SEIS and responses to the comments are in Appendix D.

Project Area

The 7,845-acre project area is value comparison unit (VCU) 7210. It is located in the northwest corner of the 191,477-acre Cleveland Roadless Area #528 (Figure 3-6). Value comparison units are defined in the Introduction to Chapter 3. There are two land use designations (LUDs) in the project area: Timber Production (2,586 acres) and Old-growth Habitat (5,259 acres). The northern project area boundary is separated from the Wrangell Ranger District by a steep, rocky ridge. Old-growth Habitat LUD surrounds the rest of the project area. Ernest Sound lies to the west.

Proposed Action

An interdisciplinary team of resource specialists identified the Proposed Action (Alternative C) in 1998. The intent of Alternative C was to provide information on the economic viability of long helicopter-yarding distances and the application of uneven-aged management prescriptions. It was the Preferred Alternative in the Draft EIS because it avoided road construction in Cleveland Roadless Area #528 and Old-growth Habitat land use designations (LUDs). It was an economically possible action in the 1998 economic analysis.

Proposed Action

The Forest Service proposes to selectively harvest approximately 24,359 hundred cubic feet (CCF) of timber from approximately 620 acres of National Forest Land through a single timber sale. The silvicultural treatment for the harvest units would be single-tree selection (561 acres) and group selection (59 acres). Logs would be transported to barges in Emerald Bay using helicopter yarding. This would require no new road construction and no log transfer (LTF) facility construction.

Purpose and Need

The proposed Emerald Bay Timber Sale project responds to goals and objectives of the Forest Plan, and moves the Timber Production LUD toward the desired conditions described in that plan. This project intends to implement Forest Plan direction for the Timber Production land use designation:

- Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.
- Seek to provide a timber supply sufficient to meet the annual market demand for Tongass NF timber, and the market demand for the planning cycle.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.
- Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.
- Attempt to minimize disturbance in adjoining Old-growth land use designations (LUDs) and minimize fragmentation of roadless areas while still meeting the goals, objectives and desired condition for the Timber Production LUD.
- Provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources.

Appendix A explains why the project is selected for analysis at this time. Further clarification is found in Chapter 1, Relationship to the Forest Plan.

Land Use Designations

The Forest Plan has area-specific goals, objectives, and desired future conditions. The Forest Plan uses land use designations (LUDs) to guide management of the Tongass National Forest. The two Emerald Bay project area LUDs are Timber Production and Old-growth Habitat.

Timber Production LUD Desired Conditions

The desired condition for the Timber Production LUD includes healthy stands in a balanced mix of age classes from young to harvestable.

Goals of this designation (Forest Plan, p. 3-144):

- Maintain and promote industrial wood production from suitable timber lands, providing a continuous supply of wood to meet society's needs
- Manage these lands for sustained long-term timber yields
- Provide a supply of timber that meets the annual and planning-cycle market demand, consistent with the standards and guidelines of this LUD

Objectives of this designation (Forest Plan, p. 3-144):

- Improve timber growth and productivity on commercial forest lands
- Plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production, and
- Seek to reduce clearcutting when other methods meet land management objectives

The project design responds to these goals and objectives, and moves the project area toward the desired future conditions of the LUD. The project proposes timber harvesting on selected timberland suitable for producing sawtimber and wood products, to help meet market demand for timber, and provide local resource production opportunities and employment

Old-growth Habitat LUD Desired Conditions

The desired condition is to attain old-growth forest characteristics and provide a diversity of old-growth habitat types.

Goals of this designation (Forest Plan, p. 3-76):

- Maintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources
- Manage early seral conifer stands to achieve old-growth forest characteristic structure and composition based on site capability

Objectives of this designation (Forest Plan, p. 3-76):

- Provide old-growth forest habitats, in combination with other LUDs, to maintain viable populations of... fish and wildlife species.... that may be closely associated with old-growth forests
- Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses
- To the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives

Issues

Public comments and internal concerns identified the project issues. Similar issues were combined in one statement where appropriate. The following issues were determined to be key and within the scope of the project decision.

Timber Economics and Supply

- The amount of timber available and proposed for harvest. (Comments ranged between too little and too much proposed timber harvest.)
- The methods of timber harvest. (Methods analyzed are even-age (clearcut) and uneven-age (single-tree and group selection).)
- Balancing timber production with other forest resources. (Implementing Forest Plan Standards and Guidelines for timber production while meeting standards and guidelines for other resources.)
- How the project contributes to the long-term timber supply. (See Appendix A.)
- The project needs to produce cost-effective timber harvest. (Although deficit timber sales can be analyzed, direction requires that timber sale contract offerings show a positive return.)

Roadless and OGR Values

- The effects of road construction on roadless values and wilderness characteristics
- The effects to wildlife of timber harvest and road construction through a medium Old-growth Reserve

Areas of Special Consideration

Resource specialists explored the feasibility of other means to access the Timber Production LUD and minimize effects to the Old-growth Habitat (OGR) reserve located in the Cleveland Roadless Area while meeting the Purpose and Need for the project. Five alternative road routes were considered (see Chapter 3, Transportation). Each of these routes provided greater obstacles to overcome than the proposed route from Emerald Bay. These obstacles included climbing a steep rocky face on the northern side of the project area, constructing more miles of road while still crossing the roadless area and OGR, unacceptable expense because of the construction requirements, and the travel distance to an LTF.

The Emerald Bay project seeks to minimize the effects to non-timber resources while meeting the Purpose and Need. The project design reduces effects (for example: minimizing the road width and LTF footprint, removing the LTF and closing the road after timber harvest, employing single-tree selection when appropriate.) Forest Plan mitigation measures, Best Management Practices, monitoring, and project-specific mitigation measures are employed to reduce effects of the project.

The following items identify special characteristics of the Emerald Bay project design.

Eagle Nest Buffer Encroachment

The proposed LTF and road are within a 330-foot bald eagle nest management zone.

Southeast Alaska has the highest density of bald eagles in North America. In 1992, there were over 13,000 adult birds, and approximately 8,000 known nest sites. Bald eagles nest primarily in old-growth habitat along the coast and in riparian areas. Over 90 percent of the nests are within 500 feet of saltwater. Bald eagle and riparian Forest-wide Standards and Guidelines are specifically designed to protect bald eagle nesting habitat (Forest Plan 4-53 and 4-113).

The Forest Service and U.S. Fish and Wildlife Service (USFWS) renewed an Interagency Agreement (#02MU-111001-018) in February 2002. The agreement specifies the actions

required to implement the Bald Eagle Protection Act. The agreement specifies seasonal activity restrictions. All bald eagle nests are considered active from March 1 to May 15. Active nests have seasonal restrictions from March 1 to August 31. Two bald eagle nests are located near the LTF site. The nests were active in 2005. The Forest Service has requested a variance from the U.S. Fish and Wildlife Service (USFWS) for LTF and road construction, and helicopter timber harvest.

Old-growth Reserve Habitat Protection

The Emerald Bay project area (VCU 7210) is in the northwest corner of Cleveland Roadless Area #528. Three sides of the 2,586-acre Timber Production LUD border 21,300 acres of Old-growth Habitat LUDs in the 191,477-acre Cleveland Roadless Area #528. Proposed road, sortyard, work camp, rock pits, and LTF construction would affect about 23 acres of Old-growth Habitat LUD.

Although only a small portion of the OGR is affected, the project area is in a travel corridor for species such as deer, bear, and wolves. The proposed road and LTF design would minimize disturbance. The road would be closed to public traffic during and after harvest. Log-stringer bridges and culverts would be removed to discourage all motorized use. The LTF would be put into storage, and the site would be covered with fill from the bulkhead removal. The road would not be maintained and would be tree covered after 20-30 years (see Chapter 3, Wildlife, Biodiversity and Old Growth, Marine Environment, Log Transfer Sites and Related Facilities, and Transportation).

Cleveland Roadless Area #528 Values and Wilderness Characteristics

Cleveland Roadless Area #528 is described in detail in the Forest Plan SEIS, Roadless Area Evaluation for Wilderness Recommendations; Volume III: Appendix C – Part 2; pages C2-536-548. The main attraction to the area is the outstanding saltwater fishing in the major bays. The public identified the Emerald Bay area as important for subsistence, ecotourism, public recreation, hunting, and trapping.

Forty percent of the roadless area is designated Timber Production (63,329 acres) or Modified Landscape (13,989 acres), LUDs that allow timber harvest. Sixty percent of the area is non-timber production LUDs: Old-growth Habitat (38,938 acres), Semi-remote Recreation (75,196 acres), and Remote Recreation (25 acres).

The 7,845-acre project area is 4 percent of the roadless area. After the proposed timber harvest, over 95 percent of the roadless area would retain roadless values: “high natural integrity and apparent naturalness”, and wilderness capability: “opportunity for solitude and serenity, self-reliance, adventure, challenging experiences, and primitive recreation” (Forest Plan, Appendix C).

Alternatives

Alternative A - No Action, proposes no new timber harvest or road construction in the Emerald Bay project area at this time. It does not preclude timber harvest from other areas at this time or from the project area at some time in the future. Council on Environmental Quality (CEQ) regulations require that a “No Action” alternative be analyzed in every EIS (40 CFR 1502.14(d)). This alternative represents the existing condition. It serves as a baseline for comparing the alternatives.

Alternative B – Preferred Alternative proposes to harvest 601 acres producing 32,749 CCF (hundred cubic feet) (16,373 MBF (thousand board feet)) of timber. Alternative B includes clearcutting (even-aged management) and single-tree selection (uneven-age) harvest methods. New road construction totals 6.2 miles - 5.8 miles of classified road and 0.4 miles of temporary road with 2.2 miles of road crossing a medium Old-growth Habitat Reserve. Log-stringer bridges would be used to cross Class I, II, and III streams. Culverts would drain Class IV

Summary

streams. Road construction would include three 1-acre rock pits. Two of these rock pits would be in the medium Old-growth Habitat Reserve. This alternative would construct a land-to-barge log transfer facility (LTF) at Emerald Bay.

Alternative C – Proposed Action proposes to harvest 620 acres by helicopter producing 24,359 CCF (12,179 MBF) of timber. Alternative C uses uneven-aged selection harvest. No log transfer facilities or sortyard are proposed for Alternative C. The logs from the units would be placed directly on barges. This alternative would not include road construction, LTF, or a land camp.

Alternative D would harvest 620 acres producing 24,783 CCF (12,391 MBF) of timber. Alternative D uses the uneven-aged selection harvest methods prescribed for Alternative C. This alternative proposes to build 3.8 miles of low-impact classified road (2.2 miles through the medium Old-growth Habitat Reserve). This road would shorten the helicopter-yarding distance, and decrease the logging cost and increase net stumpage value.

Comparing the Alternatives

Table S-1 provides an overview comparison of information from the alternative descriptions above. Refer to Chapter 3 for details on the effects of the alternatives by resource.

Table S-1
Comparing the Alternatives

Category	Unit of Measure	Alt A	Alt B	Alt C	Alt D
Harvest method					
Clearcut	acres	0	396	0	0
Single-tree selection	acres	0	205	561	561
Group selection	acres	0	0	59	59
Harvest volume	CCF ¹	0	32,749	24,359	24,783
	MBF ²	0	16,373	12,179	12,391
Harvest system					
Cable	acres	0	374	0	0
Helicopter	acres	0	218	620	609
Shovel	acres	0	9	0	11
Road construction					
New classified	miles	0	5.8	0	3.8
New temporary	miles	0	0.4	0	0
LTF	#	0	1	0	1
Rock pits	#	0	3	0	3

¹CCF = hundred cubic feet

²MBF = thousand board feet

Source: M. North

Chapter 1

Purpose and Need

Chapter 1

Polynomials and Rings

Polynomial Rings

Polynomial Rings

Polynomial Rings

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Chapter 1

Purpose and Need

Background

The Forest Service has complied with the National Environmental Policy Act (NEPA) and other relevant State and Federal laws and regulations in preparing this Final Supplemental Environmental Impact Statement (SEIS) on the potential effects of timber harvest in the Emerald Bay Timber Sale project area. The project area is located on the Cleveland Peninsula, on the Ketchikan–Misty Fjords Ranger District, Tongass National Forest (see Figure 1-1).

A "Proposed Action" is defined early in project planning. This serves as a starting point for an interdisciplinary team analysis, and gives the public and other agencies specific information on which to focus comments. The Proposed Action (Alternative C) was identified in 1998. Alternative C was intended to provide information on the economic viability of long helicopter-landing distances and the application of uneven-aged management prescriptions. It was the Preferred Alternative because it avoided road construction in an Old-growth Habitat land use designation (LUD) and was an economically possible action in the 1998 economic analysis.

The Proposed Action and alternatives have remained consistent for this project although changing market conditions have caused the Preferred Alternative to change over time. Resource specialists analyzing the effects of the project determined that this constancy is necessary in order to understand the effects of a fluctuating economy on the project.

The Emerald Bay Timber Sale project first appeared on the Tongass National Forest quarterly Schedule of Proposed Actions in the spring of 1997. A Notice of Intent (NOI) to prepare an environmental impact statement (EIS) was published in the *Federal Register* August 17, 1998. The Draft EIS was released January 28, 2000 for public comment. The Draft EIS disclosed the potential effects of three alternatives.

The market price for timber declined substantially after the first economic analysis was completed. In March 2000, after the Draft EIS was released (January 28, 2000), but before the close of the public comment period, a fourth alternative was developed in response to public comment. The alternative would retain uneven-aged harvest, but improve economics by shortening helicopter flight distance with road construction to the project area and a land-to-barge LTF. This alternative was developed, in part, because further analysis of Alternative C had demonstrated it to be economically infeasible.

A public information meeting March 2, 2000 introduced Alternative D. A March 20, 2000 project update letter was sent to all agencies, organizations, and individuals on the project mailing list. This letter described Alternative D and extended the comment period on the Draft EIS to May 5, 2000.

Tongass Forest Supervisor Tom Puchlerz signed the Record of Decision (ROD) on October 23, 2001 for the Emerald Bay Timber Sale EIS, selecting Alternative D. The Notice of Availability for the EIS and ROD was published in the *Federal Register* November 2, 2001.

1 Purpose and Need

The decision was reversed February 14, 2002 on appeal. The appeal deciding officer determined that the EIS did not adequately address effects to Cleveland Roadless Area #528 values or wilderness eligibility. The Draft Supplemental Environmental Impact Statement (SEIS) included more detail on the potential effects of the project alternatives on these resources. The availability of the Draft SEIS was published October 15, 2004 in the *Federal Register*. Comments on the Draft EIS and responses to the comments are in Appendix D.

Proposed Action

An interdisciplinary team of resource specialists identified the Proposed Action (Alternative C) in 1998. The intent of Alternative C was to provide information on the economic viability of long helicopter-yarding distances and the application of uneven-aged management prescriptions. It was the Preferred Alternative in the Draft EIS because it avoided road construction in Cleveland Roadless Area #528 and Old-growth Habitat land use designations (LUDs). It was an economically possible action in the 1998 economic analysis.

Proposed Action

The Forest Service proposes to selectively harvest approximately 12 million board feet (MMBF) of timber from approximately 620 acres of National Forest Land through a single timber sale. The silvicultural treatment for the harvest units would be single-tree selection (561 acres) and group selection (59 acres). Logs would be transported to barges in Emerald Bay using helicopter yarding. This would require no new road construction and no log transfer facility (LTF) construction.

Project Area

The Emerald Bay Timber Sale project area is located on Cleveland Peninsula, about 40 air miles north of Ketchikan, Alaska (Figure 1-1). Cleveland Peninsula is connected to the mainland. It is bordered on the east by Behm Canal, the southwest by Clarence Strait, and the northwest by Ernest Sound.

The 7,845-acre project area is value comparison unit (VCU) 7210. It is located in the northwest corner of the 191,477-acre Cleveland Roadless Area #528 (Figure 1-2). Value comparison units are defined in the Introduction to Chapter 3. There are two land use designations in the project area: Timber Production (2,586 acres) and Old-growth Habitat (5,259 acres). The northern project area boundary is separated from the Wrangell Ranger District by a steep, rocky ridge. Old-growth Habitat LUDs surround the rest of the project area. Ernest Sound lies to the west. The Timber Production LUD is only accessible by travel through Old-growth Habitat or by helicopter.

The project area (VCU 7210) contains the Emerald Creek watershed and a small portion of the Wasta Creek drainage. Access to the area is by small plane originating in Ketchikan or Wrangell or by boat through Ernest Sound.

Purpose and Need

The proposed Emerald Bay Timber Sale project responds to goals and objectives of the Forest Plan, and moves the Timber Production LUD toward the desired conditions described in that plan. This project intends to implement Forest Plan direction for the Timber Production land use designation.

- Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.
- Seek to provide a timber supply sufficient to meet the annual market demand for Tongass NF timber, and the market demand for the planning cycle.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.
- Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.
- Provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources.

The project attempts to minimize disturbance in adjoining Old-growth land use designations (LUDs) and minimize fragmentation of roadless areas while still meeting the goals, objectives and desired condition for the Timber Production LUD.

Appendix A explains why the project was selected for analysis at this time. Further clarification is found in the section titled "Relationship to the Forest Plan" in this chapter.

Decision to be Made

Based on the environmental study and analysis and public comment, the Tongass Forest Supervisor will decide whether and how to make timber available from the project area in accordance with Forest Plan goals, objectives and desired conditions.

This decision will consider:

- The location, design, and schedule of timber harvest, silvicultural prescriptions, road construction, and associated facilities
- Road management such as travel restrictions and closures
- Mitigation measures and monitoring requirements
- Whether or not there may be a significant possibility of a significant restriction on subsistence use

1 Purpose and Need

Figure 1-1
Project Area Vicinity Map

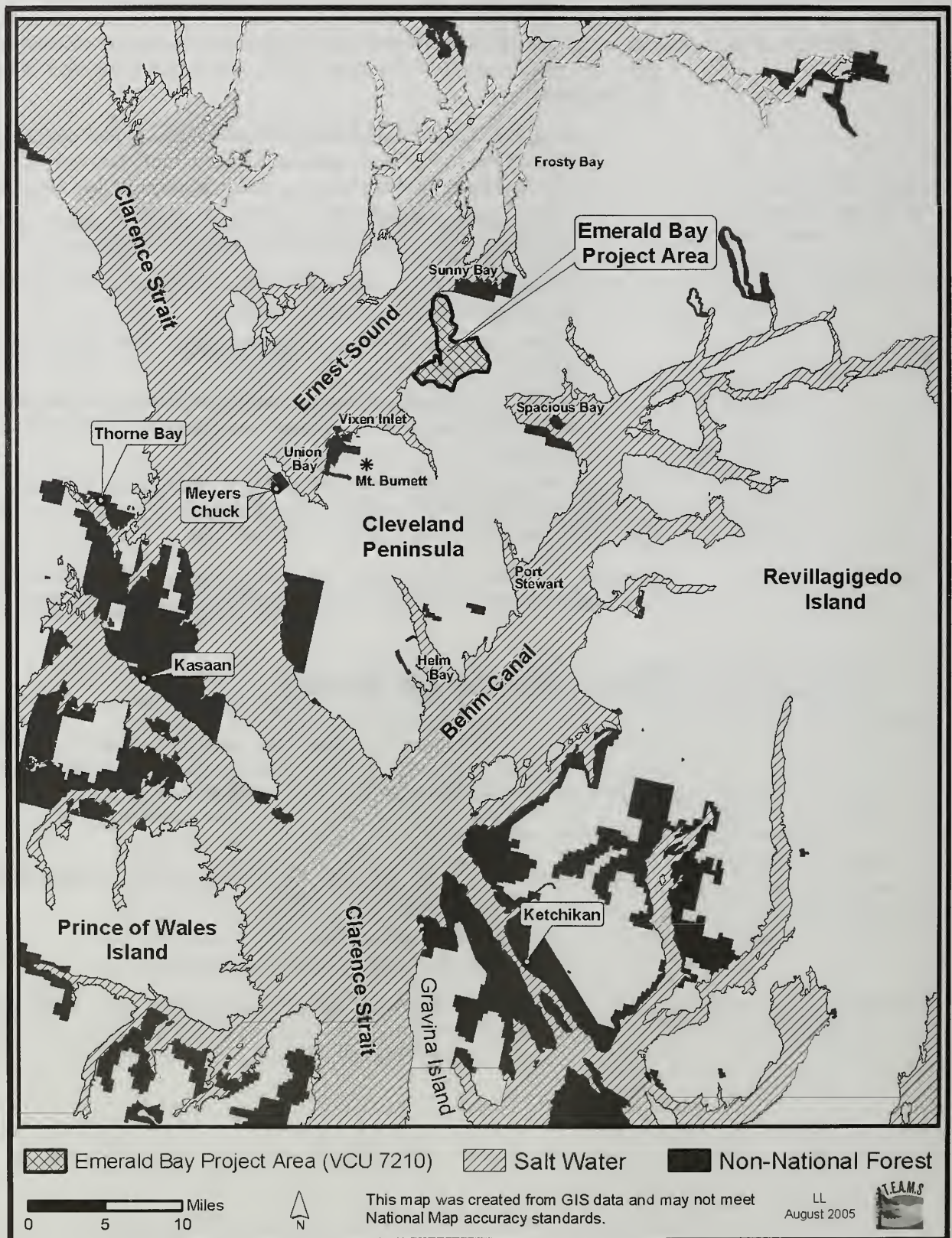
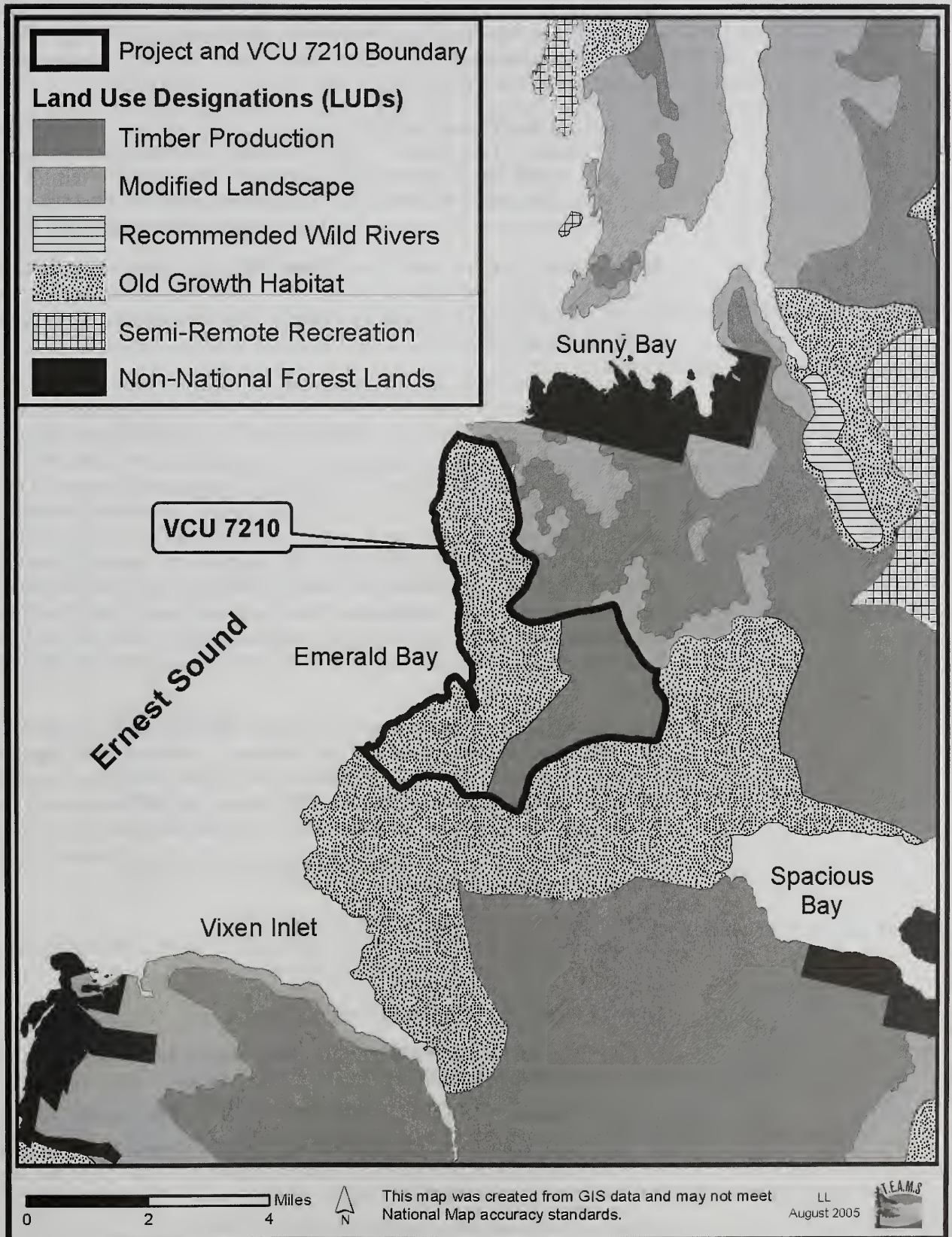


Figure 1-2
Emerald Bay Project Area, Land Use Designations and Value Comparison Unit 7210



Source: GIS, TEAMS, L.LaPorta, 2005

Relationship to the Forest Plan

The analysis for this project tiers directly to the Forest Plan. The Forest Plan embodies the provisions of the National Forest Management Act, its implementing regulations, and other guiding documents. The Forest Plan details the direction for managing the land and resources of the Tongass National Forest. The Forest Plan is a result of extensive analysis described in the Forest Plan Final EIS.

The Emerald Bay Timber Sale SEIS is a project-level analysis; its scope is confined to issues about the effects of the project. It does not attempt to address decisions made at higher levels. However, it does implement direction provided at those higher levels. When appropriate, the SEIS tiers to the Forest Plan Final EIS, as encouraged by 40 CFR 1502.20. In addition, this SEIS will summarize and cite documented analyses, rather than repeat the entire analysis.

Relationship to the Forest Plan Final SEIS for Wilderness Recommendations

The roadless inventory prepared for the 1997 Forest Plan was updated to support the SEIS (Forest Plan Final SEIS Alternative 1 Maps). The Emerald Bay project proposes timber harvest and road construction in the Cleveland Roadless Area #528.

Effective May 13, 2005, the Department of Agriculture revised the 2001 Roadless Area Conservation Rule (Subpart B of Title 36, Code of Federal Regulations, Protection of Inventoried Roadless Areas,) by adopting a new rule, Special Areas; State Petitions for Inventoried Roadless Area Management. This 2005 Roadless Rule establishes a petitioning process that provides Governors an opportunity to seek establishment of or adjustment to management requirements for National Forest System inventoried roadless areas within their states. Submission of a petition is strictly voluntary, and management requirements for inventoried roadless areas are guided by the Tongass (or Chugach) Forest Plan until and unless these management requirements are changed through a state-specific rulemaking. If the Secretary of Agriculture accepts a petition, the Forest Service shall be directed to initiate notice and comment rulemaking to address the petition. Further details on the history of the Roadless Rule and how it affected development of this project (if it did at all) are available in the project record.

In December 2003, as part of a settlement agreement reached in the *State of Alaska v. USDA*, the Department adopted a final rule that temporarily withdrew the Tongass National Forest from the provisions of the 2001 Roadless Rule. Under the approach established in this 2005 final rule, management of inventoried roadless areas on the Tongass will continue to be governed by the existing Forest Plan, unless changed through a state-specific rulemaking as described above. This 2005 rule negates the need for further Tongass-specific rulemaking anticipated in the 2003 temporary withdrawal.

Timber Production LUD Desired Condition

The desired condition for the Timber Production LUD includes healthy stands in a balanced mix of age classes from young to harvestable.

Goals of this designation (Forest Plan, p. 3-144):

- Maintain and promote industrial wood production from suitable timber lands, providing a continuous supply of wood to meet society's needs
- Manage these lands for sustained long-term timber yields
- Seek to provide a supply of timber from the Tongass National Forest which meets the annual and planning-cycle market demand, consistent with the standards and guidelines of this LUD

Objectives of this designation (Forest Plan, p. 3-144):

- Improve timber growth and productivity on commercial forest lands

- Plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production, and
- Seek to reduce clearcutting when other methods will meet land management objectives

The project design responds to these goals and objectives, and moves the project area toward the desired future conditions of the land use designation. The project proposes timber harvesting on selected timberlands suitable for the production of sawtimber and other wood products to help meet market demands for timber and provide resource production opportunities and employment for local communities.

Old-growth Habitat LUD Desired Conditions

The desired condition is to attain old-growth forest characteristics and provide a diversity of old-growth habitat types.

Goals of this designation (Forest Plan, p. 3-76):

- Maintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources
- Manage early seral conifer stands to achieve old-growth forest characteristic structure and composition based on site capability

Objectives of this designation (Forest Plan, p. 3-76):

- Provide old-growth forest habitats, in combination with other LUDs, to maintain viable populations of fish and wildlife species that may be closely associated with old-growth forests
- Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses
- To the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives

Issues

Public comments and internal concerns identified the project issues. Similar issues were combined in one statement where appropriate. The following issues were determined to be key and within the scope of the project decision.

Issue 1

Timber Economics and Supply

This issue encompasses public concern regarding:

- The amount of timber available and proposed for harvest (Comments ranged between too little and too much proposed timber harvest.)
- The methods of timber harvest (Methods analyzed are even-age (clearcut) and uneven-age (single-tree and group selection).)
- Balancing timber production with other forest resources (Implementing Forest Plan Standards and Guidelines for timber production while meeting standards and guidelines for other resources)
- How the project contributes to the long-term timber supply (see Appendix A)
- The project needs to produce cost-effective timber harvest. (Although deficit timber sales can be analyzed, direction requires that timber sale contract offerings show a positive return.)

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Issue 2

Roadless and OGR Values

- The effects of road construction on roadless values and wilderness characteristics
- The effects to wildlife of timber harvest and road construction through a medium Old-growth Reserve

Areas of Special Consideration

Resource specialists explored the feasibility of other means to access the Timber Production LUD and minimize effects to the Old-growth Habitat (OGR) Reserve located in the Cleveland Roadless Area while meeting the Purpose and Need for the project. Five alternative road routes were considered (see Chapter 3, Transportation). Each of these routes provided greater obstacles to overcome than the proposed route from Emerald Bay. These obstacles included climbing a steep rocky face on the northern side of the project area, constructing more miles of road while still crossing the roadless area and OGR, unacceptable expense because of the construction requirements, and the travel distance to an LTF.

The Emerald Bay project seeks to minimize the effects to non-timber resources while meeting the Purpose and Need. The project design reduces effects (for example, minimizing the road width and LTF footprint, removing the LTF and closing the road after timber harvest, employing single-tree selection when appropriate.) Forest Plan mitigation measures, best management practices, monitoring, and project-specific mitigation measures are employed to reduce effects of the project.

The following items identify special characteristics of the Emerald Bay project design.

Eagle Nest Buffer Encroachment

Southeast Alaska has the highest density of bald eagles in North America. In 1992 there were over 13,000 adult birds, and approximately 8,000 known nest sites. Bald eagles nest primarily in old-growth habitat along the coast and in riparian areas. Over 90 percent of the nests are within 500 feet of saltwater. Bald eagle and riparian Forest-wide Standards and Guidelines are specifically designed to protect bald eagle nesting habitat (Forest Plan 4-53 and 4-113).

The proposed LTF and road are within a 330-foot bald eagle nest management zone. Surveys in June 2000 found three nests located at or near Emerald Bay (USFWS 2000). Aerial surveys of the nests in summer of 2001 located two of the nests. They appeared dilapidated and unused. (Spiering and Zelenak, 2001). These nests appeared active in 2005. The third nest was not located.

The Forest Service and U.S. Fish and Wildlife Service (USFWS) renewed an Interagency Agreement (#02MU-111001-018) in February 2002. The agreement specifies the actions required to implement the Bald Eagle Protection Act. The agreement specifies seasonal activity restrictions. All bald eagle nests are considered active from March 1st to May 15th and the 330-foot management zone must be maintained even if the nest is inactive. Project activities in the management zone would require a variance from the U.S. Fish and Wildlife Service, which the Forest Service has requested, for LTF and road construction, and helicopter timber harvest.

Old-growth Reserve Habitat Protection

The Emerald Bay project area (VCU 7210) is in the northwest corner of Cleveland Roadless Area #528. Three sides of the 2,586-acre Timber Production LUD border 21,300 acres of Old-growth Habitat LUDs. Proposed road, sortyard, work camp, rock pits, and LTF construction would physically alter about 23 acres or .1 percent of Old-growth Habitat LUDs.

Although only a small portion of the OGR is affected, the project area is in a travel corridor for species such as deer, bear, and wolves. The road would be closed to all public motorized traffic during and after harvest. Log-stringer bridges and drainage pipes would be removed.

The LTF would be removed and the site would be covered with fill from the bulkhead removal, dirt, and logging debris. The road would not be maintained and would be tree covered after 20-30 years (see Chapter 3, Wildlife, Biodiversity and Old Growth, Marine Environment, Log Transfer Sites and Related Facilities, and Transportation).

Cleveland Roadless Area #528 Values and Wilderness Characteristics

Cleveland Roadless Area #528 is described in detail in the Forest Plan SEIS, Roadless Area Evaluation for Wilderness Recommendations; Volume III: Appendix C – Part 2; pages C2-536-548. The main attraction to the area is the outstanding saltwater fishing in the major bays. The public identified the Emerald Bay area as important for subsistence, ecotourism, public recreation, hunting, and trapping.

Forty percent of the roadless area is designated Timber Production (63,329 acres) or Modified Landscape (13,989 acres), LUDs that allow timber harvest. Sixty percent of the area is non-timber production LUDS: Old-growth Habitat (38,938 acres), Semi-remote Recreation (75,196 acres), and Remote Recreation (25 acres).

After the proposed timber harvest, over 98 percent of the roadless area would retain roadless values of “high natural integrity and apparent naturalness” and wilderness capability of “opportunity for solitude and serenity, self-reliance, adventure, challenging experiences, and primitive recreation” (Forest Plan Appendix C).

The following public concerns were not determined to be key issues. Either the Forest Plan addresses them or their resolution is beyond the scope of this project.

Forest Plan Management Land Use Designations (LUDs)

Some comments recommend changing the Forest Plan land use designations in order to eliminate, reduce, or increase the level of harvest (ASQ) or maximize specific resources. This concern included suggestions not to implement Forest Plan Standards and Guidelines or Best Management Practices. Comments regarding the general management of the Tongass National Forest, management prescriptions, or procedural issues are beyond the scope of this project.

Regional Timber Supply and Demand Should Be Refigured

The regional timber volume that is under contract with a purchaser is updated monthly and can be found on the Region 10 internet site. The amount of timber that is available for sale constantly changes as decisions on timber harvest projects are made and timber sales sold. The most recent calculation of the timber available for offer is found in Appendix A, Table A-2, Pool 2. Much of this timber volume cannot be offered at this time in compliance with the 2005 Appropriations Act since the sales appraised deficit under current market conditions.

Each year a projection is made of how much timber will need to be offered by the Tongass to meet annual market demand. That projection is made following the methodology described in Morse April 2000. Timber harvest volume resulting from this project and other current projects would contribute volume to the regional timber supply and help meet demand. The amount of timber from this project would be between 0 MMBF and 16.4 MMBF. The volume of timber cleared in a NEPA document may be offered in whole, in part, or not at all, depending on market conditions or other considerations in the overall management of the national forests.

Do Not Use a Predetermined Harvest Volume

Harvest volume was part of the Proposed Action and is based on the area to be harvested and the silvicultural prescriptions. The alternatives to the Proposed Action propose different harvest volumes.

Soils, Hydrology, and Fisheries

Some people had concerns about logging on steep slopes, the potential for landslides, and increased erosion. Table Soils-2 in Chapter 3 lists the approximate acreage of slopes over 72 percent gradient, in Units 3, 5 and 6. The soil scientist identified these slope areas as suitable

Issues Outside the Scope of this Project

Other Concerns

1 Purpose and Need

for timber harvest due to low landslide potential. Harvest on these steep slopes would be partial cut with full suspension via helicopter yarding in all three action alternatives.

The direct and indirect effects of harvesting on soils, soil productivity, surface erosion, and mass movement are disclosed in the "Soils and Geology" section of Chapter 3. This section cited the references on which the conclusions are based.

Recreation and Scenic Quality

Some comments address the importance of protecting the scenic quality from Ernest Sound. This concern is adequately addressed in project design, Forest Plan Standards and Guidelines and the Tongass Plan Implementation Team (TPIT) clarifications. The project would have minimal effects to existing recreational pursuits in the project area (see Chapter 3, Recreation and Scenery sections).

Heritage Resources

Harvest and roadbuilding activities can affect historical properties. A heritage resource survey was conducted and all sites would be avoided in accordance to law. The State Historic Preservation Officer has been consulted, in accordance with Section 106 of the NHPA and 36 CFR Part 800, and concurred that no National Register eligible sites would be affected by the proposed activities. There would not be effects to known significant cultural resources (see Chapter 3, Heritage Resources section).

Public Involvement

**Scoping
Aug 1998**

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the key issues related to a Proposed Action" (40 CFR 1501.7). The scoping process was used to invite public participation and collect initial comments.

Notice of Intent (NOI)

A Notice of Intent was published August 17, 1998 in the *Federal Register* when it was decided that an EIS was to be completed for the project.

Public Mailing

In early August 1998, a letter providing information and seeking public comment (scoping document) was mailed to 140 individuals and groups that had previously shown interest in Forest Service projects in Southeast Alaska. The mailing included seven Federal agencies, five State agencies and divisions, 22 Native and municipal offices, and 106 businesses and other organizations, groups, and individual citizens. There were 28 responses to this initial mailing.

Local News Media

Legal announcements about the project were published in the August 15-16, 1998 weekend edition of the *Ketchikan Daily News* and the August 13, 1998 edition of the *Wrangell Sentinel*. A display advertisement with map, describing the project, was published in the August 15-16, 1998, weekend edition of the *Ketchikan Daily News*.

Public Meetings

A public meeting was held at the Narrows Inn in Ketchikan on August 24, 1998 to provide information and discuss potential areas of concern to be addressed in the project analysis.

Consultation with Tribal Governments

Government-to-government consultations and information-sharing meetings with federally recognized tribal governments, and meetings with traditional tribal governments took place in 1998 and was updated to the SEIS in 2004 and 2005. Emerald Bay is within the traditional use area of the Wrangell-area Tlingits. Meetings included: Wrangell Cooperative Association (10/02/98, 11/01/04, 11/11/04 and 11/12/04), Organized Village of Saxman (11/03/04),

Metlakatla Indian Community (11/16/04), and Ketchikan Indian Community (10/25/04). Tribal concerns were considered in the environmental analysis. Tribal consultation does not imply that the tribes endorse the Proposed Action or any of the alternatives.

Draft EIS Jan 2000

Availability of Draft EIS for Public Comment

Availability of the Draft EIS was announced on January 28, 2000, both in the *Federal Register* and through legal notice published February 7, 2000 in the *Ketchikan Daily News* and February 10, 2000 in the *Wrangell Sentinel*. The 45-day public comment period started January 28, 2000 and was extended to April 15, 2000. The Draft EIS was mailed to Federal and State agencies, Native and municipal offices, and others who requested it.

Public Information Meeting

In response to public comment, a public meeting was held on March 2, 2000 to introduce a fourth alternative, Alternative D, which combined elements of Alternatives B and C.

Project Update Letter, March 20, 2000

A project update letter was sent to those on the Draft EIS mailing list on March 20, 2000 incorporating comments from the public meeting and detailing Alternative D. In order to allow adequate time for comments, this letter extended the comment period on the Draft EIS to May 5, 2000 for a total of 98 days.

Analysis and Incorporation of Public Comment

Twenty-two agencies, organizations, and individuals submitted written comments on the Draft EIS. The IDT analyzed and incorporated these comments into the Final EIS. Public comments, and responses to the comments, are listed in Appendix D.

Some comments expressed concern about road building and timber harvest in Cleveland Roadless Area #528. They thought the roadless nature of the Cleveland Peninsula should be retained. They referenced a letter from the Governor of Alaska corroborating that statement. Others were concerned that a precedent would be set by proposing to build a road through a medium Old-growth Reserve. They cited possible effects to fish and wildlife resources and wondered what allowances would be made. These comments are the roadless and OGR issue discussed in Chapter 2.

Some comments expressed concern over the economic viability of proposing uneven-aged management prescriptions in an isolated Timber Production LUD. They also questioned whether these prescriptions would meet the objectives of the LUD and the Purpose and Need for the project. These comments are the timber economics issue discussed in Chapter 2.

The IDT evaluated and responded to these comments (Appendix D). Chapters 2 and 3 summarize the analysis of effects to roadless values, the medium Old-growth Reserve, and timber economics.

Final EIS and Record of Decision Nov 2001

Final EIS and Record of Decision

Forest Supervisor Thomas Puchlerz signed the Emerald Bay Timber Sale Record of Decision on October 23, 2001, selecting Alternative D. The Notice of Availability of the Final Environmental Impact Statement was published November 2, 2001 in the *Federal Register*. The legal notice was published November 2, 2001 in the *Juneau Empire*.

Appeal of the Record of Decision

The Tongass Forest Supervisor's decision was reversed on appeal to the Regional Forester because the EIS did not adequately consider the potential effects of the project on roadless area values and wilderness characteristics.

Scoping SEIS Oct 2002

Public Scoping – Project Update Letter, October 2002

A project update letter was mailed October 2002 to the EIS mailing list. It announced the preparation of the Supplemental EIS (SEIS). The letter requested comments on the preparation of the SEIS. Fourteen agencies, organizations, and individuals submitted comments.

1 Purpose and Need

Draft SEIS Oct 2004

Availability of the Draft SEIS for Public Comment

Availability of the Draft SEIS was announced October 15, 2004 in the *Federal Register*. This announcement started a public comment period ending November 29, 2004. The Draft SEIS was mailed to Federal and State agencies, tribal governments, municipal offices, organizations, and individuals.

An article regarding the project was published in the October 12, 2004 edition of the *Ketchikan Daily News*.

Comments on the Draft SEIS

Fifty-two agencies, organizations, and individuals submitted written comments on the Draft SEIS. In addition, an environmental organization sent a CD containing 40,474 signed form letters originating from their website. The interdisciplinary team analyzed and responded to all substantive comments. These comments and responses are included in Appendix D.

The same primary issues were identified for the SEIS that were identified during comment on the EIS: concerns about roadbuilding in the OGR and the economic viability of proposed timber harvest. No new issues were identified.

Subsistence Hearings on Draft SEIS

Two evening subsistence hearings were held for the Emerald Bay project:

October 25, 2004, 6-8 pm at the Ketchikan-Misty Fiords Ranger District; the hearing included call-in testimony to allow residents of Meyers Chuck to participate. A display ad for the meeting was published Oct. 20 and Oct. 23/24, 2004 in the *Ketchikan Daily News*. One person attended and testified at the hearing.

October 27, 2004, 6-8 pm at the Nolan Museum, Wrangell, AK. A display ad for the meeting was published Oct. 21, 2004 in the *Wrangell Sentinel*. No one attended the meeting.

Final SEIS

Publication of the Final SEIS

The Notice of Availability of this Final SEIS is sent to the EPA to publish in the *Federal Register*. Legal notices will run in the *Juneau Empire*, the newspaper of record, and in the *Ketchikan Daily News*. The legal Notice of Availability published in the *Juneau Empire* initiates a 45-day appeal period (36CFR215.15), during which the project cannot be implemented. Copies of the Final SEIS have been mailed to Federal and State agencies, tribal governments, municipal offices, and to those who requested them or responded to the Draft SEIS. The Final SEIS is also available at the Ketchikan-Misty Fiords Ranger District Office.

Permits, Licenses, and Certifications

Before implementing the proposed timber sale, various permits must be obtained from Federal and State agencies. Administrative actions on these permits would be initiated after the EIS is filed with the Environmental Protection Agency (EPA). The agencies and their responsibilities are listed below.

U.S. Army Corps of Engineers

- Approval of discharge of dredged or fill material into waters of the United States (Section 404 of the Clean Water Act of 1977, as amended)
- Approval of construction of structures or work in navigable waters of the United States (Section 10 of the Rivers and Harbors Act of 1899)

U.S. Environmental Protection Agency

- Storm water discharge permit
- National Pollutant Discharge Elimination System review (Section 402 of the Clean Water Act)

U.S. Fish and Wildlife Service

- Variance for bald eagle nest

State of Alaska, Department of Environmental Conservation

- Certification of compliance with Alaska Water Quality Standards (Section 401 Certification)
- Solid Waste Disposal Permit (Section 402 of the Clean Water Act)

State of Alaska, Department of Natural Resources

- Authorization for occupancy and use of tidelands and submerged lands

Applicable Laws and Executive Orders

A partial list of Federal laws and Executive Orders pertaining to project-specific planning and environmental analysis on Federal lands are shown below. While most pertain to all Federal lands, some of the laws are specific to Alaska. Disclosures and findings required by these laws and orders will be contained in the Record of Decision.

- Alaska Native Claims Settlement Act (ANCSA) of 1971
- Alaska National Interest Lands Conservation Act (ANILCA) of 1980
- American Indian Religious Freedom Act of 1978
- Archeological Resource Protection Act of 1980
- Cave Resource Protection Act of 1988
- Clean Air Act of 1970 (as amended)
- Clean Water Act of 1972 (as amended)
- Coastal Zone Management Act (CZMA) of 1972 (as amended)
- Endangered Species Act (ESA) of 1973 (as amended)
- Executive Order 11593 (cultural resources)
- Executive Order 11988 (floodplains)
- Executive Order 11990 (wetlands)
- Executive Order 12898 (environmental justice)
- Executive Order 12962 (aquatic systems and recreational fisheries)
- Executive Order 13007 (Indian sacred sites)
- Executive Order 13175 (coordination and consultation with tribal governments)
- Executive Order 13186 (migratory birds)
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended)
- Magnuson-Stevens Fishery Conservation and Management Act of 1996
- Marine Mammal Protection Act of 1972
- Multiple-Use Sustained-Yield Act of 1960
- Migratory Bird Treaty Act of 1918 (amended 1936 and 1972)
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990
- National Environmental Policy Act (NEPA) of 1969 (as amended)
- National Forest Management Act (NFMA) of 1976 (as amended)
- National Historic Preservation Act of 1966 (as amended)

1 Purpose and Need

- Organic Act of 1897
- Rivers and Harbors Act of 1899
- Tongass Timber Reform Act (TTRA) of 1990
- Wild and Scenic Rivers Act of 1968, amended 1986

Availability of the Planning Record

An important consideration in preparation of this SEIS is reduction of paperwork as specified in 40 CFR 1500.4. In general, the objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental effects of the alternatives and how these effects are mitigated. The planning record contains material that documents the NEPA process and analysis from the beginning of the project to the publication of the Final SEIS.

The planning record is located at the Ketchikan-Misty Fiords Ranger District office in Ketchikan, Alaska. The Forest Plan is also available on CD-ROM and on the internet at <http://www.fs.fed.us/r10/tongass/>.

Chapter 2

Alternatives

Chapter 5

Algorithms

1. Introduction
2. The Euclidean Algorithm
3. The Extended Euclidean Algorithm
4. The Chinese Remainder Theorem
5. The RSA Cryptosystem
6. The Diffie-Hellman Key Exchange
7. The ElGamal Cryptosystem
8. The Schnorr Signature Scheme
9. The Fiat-Shamir Signature Scheme
10. The Lamport Signature Scheme
11. The Merkle Signature Scheme
12. The Pedersen Commitment Scheme
13. The decommitment Scheme
14. The Schnorr Commitment Scheme
15. The Pedersen Commitment Scheme
16. The decommitment Scheme
17. The Schnorr Commitment Scheme

Chapter 2

Alternatives

Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the Emerald Bay project. It includes a discussion of alternative development, an overview of mitigation measures, monitoring and other features common to all alternatives, a description of each alternative considered in detail, and a comparison of these alternatives focusing on the key issues. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14). Maps of the alternatives are included at the end of this chapter.

Some of the information in Chapter 2 is summarized from Chapter 3, “Affected Environment and Environmental Consequences.” Chapter 3 discusses the scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives. For a fuller understanding of the effects of alternatives, readers will need to consult Chapter 3.

Changes Between the Draft and Final SEIS

Economics

The appraised stumpage values for Alternatives B, C, and D have declined since the analysis for the Draft SEIS was completed. The NEPA Economic Analysis Tool (NEAT) predicts the expected bid value for each alternative’s mix of species and logging systems, using Region 10 Transactional Evidence Appraisal data. Alternatives C and D have deficit stumpage values based on recent analysis. Alternative B has a positive value of \$5.01/CCF in the 1st quarter of 2004, and a positive value for 11 of the 12 quarters in the analysis period. Alternatives C and D appraise deficit in all 12 quarters.

Financial Efficiency Analysis

The timber financial efficiency analysis (Chapter 3, Timber Economics section) is updated to reflect more recent market conditions. In addition, a table comparing the revenues and costs of each alternative is included (Table TE-5).

Mitigation Measures

Alternatives B, C, and D include additional mitigation measures to protect wildlife. Most of these additional measures resulted from field-going personnel reporting sightings to a biologist. While these measures are common practice, now they are detailed on the unit cards. (Unit cards and road cards are located in the Record of Decision (ROD) published with this SEIS.)

Roads

In the Draft SEIS, Alternative B was shown to include 6.2 miles of new road construction. The Final SEIS clarifies this figure: 5.8 miles of new classified road and 0.4 mile of temporary road. Road locations shown in Draft SEIS Figure 2-2 have not changed. The temporary roads

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do not have a long-term need and will not be classified as system road. Road closure methods will remain unchanged.

Alternatives B and D specify that culverts would be removed during road closure. This activity was planned in the Draft SEIS; however, it was not clear.

Additional documentation of alternative road routes that were considered to access the harvest units has been updated in the "Transportation" section of Chapter 3.

Land Camp and Sortyard Location

The Draft SEIS included a temporary camp and sortyard in the Timber Production LUD. Since these facilities could be located in the OGR LUD to facilitate work between the units and the LTF, this was used in the analysis in the Final SEIS to portray the greatest potential effects. The contractor would be responsible for obtaining appropriate permits for an approved site.

Log-stringer Bridges

There was some confusion over log-stringer bridges and culverts in the Draft SEIS. All Class I, II, and III streams would have log-stringer bridges. Class IV streams are too small and narrow for log-stringer bridges. These intermittent streams would be drained at road crossings with culverts. These stream crossings would be identified on the road cards.

Rock Pits

The Draft SEIS identified 1/5-acre rock pit size. The size is corrected in this document to read 1 acre. There are three potential rock sources in the project area. One rock source is located within the Emerald Creek estuary buffer, near the LTF. The location of this potential rock source is shown on Figure 2-2.

Bald Eagles

Bald eagle nests near the LTF site appeared to be unoccupied in 2000 and 2001. Monitoring nests in 2005 near Emerald Bay indicated that two nests were occupied by eagles. The Forest Service has requested a variance from USFWS for project activities such as LTF and road construction and timber harvest by helicopter.

Cumulative Effects Analysis

Geographic areas used for cumulative effects analysis for this project include VCU 7210, WAA 1817, or the Cleveland Roadless Area #528. Several projects identified in the Draft SEIS as reasonably foreseeable future actions in the vicinity of the Emerald Bay project area are located well outside any of these analysis areas and do not contribute to cumulative effects for any resources. These projects, the Swan-Tyee Powerline, the Kuakan Timber Sale, and the Pt. Verde/Frosty/Sunny Bay Project, were discussed in the Draft SEIS but are not discussed in the Final SEIS.

Minerals exploration activity in the Mt. Burnett area near Union Bay has been identified in the Final SEIS. Cumulative effects related to this project are discussed in Chapter 3, Analyzing Effects.

Alternative Development

The alternatives were developed in response to the issues. Some of the outstanding characteristics of Cleveland Roadless Area #528 are the saltwater fishing in the major bays, the natural-appearing landscape, and the opportunity for solitude during primitive recreation experiences. The isolated nature of the Timber Production LUD created challenges in terms of access method and harvest treatments. The Timber Production LUD is surrounded on three sides by Old-growth LUDs and steep, unstable terrain on the remaining side. The IDT applied Forest Plan direction to verify the unit pool and formulate the range of alternatives. The IDT used information from the analysis of scoping comments, consultation with other agencies and

governments, computer models and analyses, and field data. Each alternative provides a different response to the issues. Each alternative represents a site-specific proposal developed through intensive IDT evaluation of timber harvest unit and road design, based on field verification. Unit identification and design also made use of topographic maps and aerial photos, and resource data available in geographic information system (GIS) format.

To address the issue of roadless and OGR values, the IDT considered a variety of alternative methods to access the project area and considered options to move the medium old-growth reserve. The IDT considered various roaded options as well as not building roads ("Transportation" section, Chapter 3). The IDT considered a variety of potential modifications to the medium old-growth reserve to avoid constructing a road through the reserve (project record). To retain the integrity of the roadless area characteristics, the IDT considered no road building as well as harvest prescriptions that would retain roadless characteristics (Forest Plan SEIS).

Timber market fluctuations have caused some changes in the anticipated values of the range of alternatives. These fluctuations may cause some alternatives from being fully considered in detail.

Some resource concerns identified during scoping, interagency discussions, and subsequent analysis did not become key issues driving alternative development. Some of those issues have been addressed through Forest Plan Standards and Guidelines, other laws, and executive orders. Avoiding management activities in some locations addressed some of those concerns. Project design addresses other concerns. For example, various resource standards and guidelines and the applicable Best Management Practices (BMPs) used to meet requirements of the Clean Water Act are automatically applied when harvest units or roads are located and designed. Additional mitigation measures apply to specific activities based on resource analysis.

An issue-processing guide was used to determine how issues would be addressed and is part of the project file. Alternatives that were considered but not analyzed in detail are described later in this chapter.

Items Common to Action Alternatives

The following list highlights standards and guidelines, mitigation measures, findings, or processes that are common to action alternatives. Applicable Forest Plan Standards and Guidelines, Best Management Practices, and other specific mitigation measures are identified on the harvest unit and road cards for implementation of the project (Draft SEIS Appendices D and E). Detailed information about standards and guidelines are in the Forest Plan, Chapter 4.

Beach and Estuary Fringe

The beach and estuary fringe is a 1,000-foot buffer from mean high tide around all marine coastlines. There are no harvest units located in the beach and estuary fringe.

Bear Habitat Management

Two strategies would be used to prevent habituation of bears to human food and garbage and to reduce human/bear incidents (Forest Plan p. 4-113): 1) requiring incinerators and other bearproof garbage disposal methods at work camps, and 2) requiring food storage methods that make food unavailable to bears.

Karst and Caves

Surveys showed no karst or caves located in the project area.

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Non-National Forest System Lands

This designation includes those lands that have been conveyed to the State, Native corporations or other private entities. There are no lands in the project area which have been conveyed to State, Native or private ownership.

Fish and Marine Habitats/Riparian Areas

The Forest Service determined that Emerald Bay Timber Sale may adversely affect Essential Fish Habitat. However, by implementing Forest Plan Standards and Guidelines and Best Management Practices, effects to Essential Fish Habitat would be minimized. Additional impacts to EFH are likely to occur only from unforeseen events. Concurrence on the EFH finding was received from NMFS on December 18, 2003. Formal Essential Fish Habitat consultation has been completed in accordance with the agreement between the Forest Service and National Marine Fisheries Service.

All Class I and II streams in the project area would be protected by a no-harvest buffer of 100 feet or more in accordance with the Forest Plan and the Tongass Timber Reform Act (TTRA). Class III streams would receive a windfirm no-cut buffer to the slope break in accordance with the Forest Plan. This minimizes the potential effects to downstream Essential Fish Habitat by reducing the likelihood of sediment introduction and maintaining future sources of large woody debris.

All Class I, II, and III stream crossings associated with the proposed road would have log-stringer bridges to provide fish passage.

Class IV streams may be considered for timber harvest. Class IV streams occur in units receiving both clearcut and partial harvest. Specific riparian area protection measures and application of Best Management Practices (BMPs) are documented on the road and unit cards. Some Riparian Management Area boundaries were increased where more protection was warranted.

Standards and guidelines for riparian areas apply to all lakes and streams in the project area. In areas susceptible to windthrow, buffer widths would be increased and additional trees would be left standing.

BMPs would be implemented to protect water quality and aquatic habitat for all freshwater streams in the project area.

The LTF would be removed after harvest. Fill from the bulkhead and slash from timber harvest would be used to cover the LTF site, which would then be re-seeded.

Heritage Resources

Standards and guidelines for heritage resources state that avoidance and protection is the preferred management for sites listed in, nominated to, or eligible for the National Register of Historic Places (p. 4-15). Evaluation of the data collection needs and survey strategy is described in a 2002 agreement between the Forest Service Alaska Region, Alaska State Historic Preservation Office, and the Advisory Council on Historic Preservation (#02MU-111001-076). This agreement modifies the standard procedures described in Section 106 of the National Historic Preservation Act, 1966.

No significant historic properties were discovered during field investigations (USDA FS CRM Reports 1998-05-17).

Most prehistoric and historic sites are located below 100-foot elevation (high-sensitivity areas). Field investigations were concentrated in high-sensitivity areas along the coast and estuaries including the proposed LTF location. The possibility that significant historic properties exist in the project is very low. The Alaska State Historic Preservation Officer concurred with the recommendation that the proposed activities would not affect significant heritage resource sites based on the literature review and subsequent field investigations. Following harvest, a sample

of roads and units is monitored to test the assumption that areas above 100-foot elevation are low-sensitive areas for heritage resources.

Soils, Water Quality and Wetlands

Potential harvest units with slopes greater than 72 percent received on-site analysis of slope and Class IV channel stability. The analysis included an assessment of potential downstream effects. Only areas with low levels of risk are included in the unit pool.

Timber Harvesting

Risks from windthrow were evaluated, and methods to minimize windthrow are incorporated into all harvest unit prescriptions.

Wildlife Habitat

The Forest Plan conservation strategy, including all species-specific standards and guidelines, is considered sufficient to maintain habitat for viable populations for all species potentially within the project area. Each alternative complies with the Forest Plan conservation strategy designed to ensure well-distributed viable populations of wildlife. Alternatives B and D propose construction of a road, LTF and rock pits in the Old-growth Habitat Reserve and through the beach/estuary buffer. These activities are generally inconsistent with management of OGR and beach/estuary fringe buffer, but are allowed where other alternatives are not feasible.

Standards and guidelines for marten are applied to timber harvest occurring in high-risk biogeographical provinces. Cleveland Peninsula is part of the Revillagigedo Biogeographical Province, a high-risk biogeographical province. Marten Standards and Guidelines apply to this project. All harvest units containing high-value marten habitat are designed to retain at least 10-20 percent canopy closure (Forest Plan, p 3-16).

The small Old-growth Habitat Reserves (Old-growth Habitat Land Use Designation) mapped in the Forest Plan require evaluation for size, spacing, and habitat composition. Two small Old-growth Habitat Reserves in the Emerald Bay vicinity were evaluated with interagency involvement. They currently meet Forest Plan Appendix K guidelines. No changes were recommended. A small OGR is not required in VCU 7210 because 67 percent of VCU 7210 is in a medium Old-growth Habitat Reserve land use designation.

Alternatives Considered in Detail

The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.10(e)) state that EISs shall consider "alternatives including the Proposed Action." Alternative C is the agency's Proposed Action, developed in 1998. Three alternatives to the Proposed Action are also considered in detail. Alternative A is the No-action Alternative, under which the project would not be implemented. Alternatives B and D represent different means of satisfying the Purpose and Need, by responding with different emphases to the key issues discussed in Chapter 1. Alternative D combines elements of Alternatives B and C.

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Table 2-1
Proposed Timber Harvest Actions for All Alternatives

Category	Unit of Measure	Alt A	Alt B	Alt C	Alt D
Harvest method					
Clearcut	acres	0	396	0	0
Single-tree selection	acres	0	205	561	561
Group selection	acres	0	0	59	59
Harvest volume	CCF ¹	0	32,749	24,359	24,783
	MBF ²	0	16,373	12,179	12,391
Harvest system					
Cable	acres	0	374	0	0
Helicopter	acres	0	218	620	609
Shovel	acres	0	9	0	11
Road construction					
New classified	miles	0	5.8	0	3.8
New temporary	miles	0	0.4	0	0
LTF	#	0	1	0	1
Rock pits	#	0	3	0	3

¹CCF = hundred cubic feet

²MBF = thousand board feet

Source: M. North

Alternative A (No Action)

Alternative A, No Action, proposes no new timber harvest or road construction in the Emerald Bay project area at this time. It does not preclude timber harvest from other areas at this time or from the project area at some time in the future. Council on Environmental Quality (CEQ) regulations require that a "No Action" alternative be analyzed in every EIS (40 CFR 1502.14(d)). This alternative represents the existing condition. It serves as a baseline for comparing the alternatives.

Alternative B (Preferred Alternative)

The emphasis of Alternative B is to maximize timber volume using even-aged harvest systems, and uneven-aged systems where helicopter yarding is necessary. The use of roads and conventional cable-yarding systems reduces logging costs.

Alternative B proposes to harvest 601 acres producing 32,749 CCF (16,373 MBF) of timber.

New road construction totals 6.2 miles - 5.8 miles of classified road and 0.4 mile of temporary road, 2.2 miles of road cross a medium Old-growth Habitat Reserve. Portions of the road are within 330 feet of the bald eagle nest buffer and the beach/estuary buffer. Roads would be constructed to minimize effects. Road width would be 14 feet, with a clearing width up to 55 feet, and the surface would be outsloped, eliminating the need for ditches and reducing sedimentation in streams. Log-stringer bridges would be used to cross Class I, II, and III streams. Culverts would drain Class IV streams. Road construction would include three 1-acre rock pits. Two of these rock pits would be in the medium Old-growth Habitat Reserve.

Roads would be closed to public traffic during the timber sale contract. All roads would be closed to all motorized vehicles when harvest operations are complete. Closure would include log-stringer bridge removal, culvert removal and storm proofing (water-bar construction). In addition, the first section of the road, within beach sight distance, would be covered through the placement of debris, such as rocks, root wads, and large wood pieces on the road surface.

This alternative would construct a land-to-barge LTF site. The LTF would be removed when harvest operations are complete. The bulkhead would be removed and the rock fill would be spread on the site. Debris barriers would be placed on the site to discourage vehicle off-loading.

A sortyard and land camp could be located in the OGR, near the LTF, to facilitate work between the units and the LTF. The contractor could also choose to use a floating camp. The contractor would be responsible for obtaining appropriate permits for an approved site.

Alternative C (Proposed Action)

Alternative C proposes to harvest 620 acres of commercial forest land producing 24,359 CCF (12,179 MBF) of timber. No log transfer facilities or sortyard are proposed for Alternative C. The logs from the units would be placed directly on barges. No land camp is proposed under this alternative.

The objective of this alternative is to emphasize uneven-aged management by using selection harvest methods to maintain at least three distinct age classes. To lessen effects, subsequent entries would be widely spaced over intervals of 50 years. This approach requires no road construction, provides timber volume, allows information to be gathered on long-distance helicopter harvesting, and maintains the integrity of large, unfragmented blocks of old-growth forest. This alternative responds to the issue of the effects on the roadless area by no road construction and maintaining a natural-appearing landscape.

Alternative D

Alternative D would harvest 620 acres producing 24,783 CCF (12,391 MBF) of timber. In order to improve the financial efficiency, this alternative proposes to build 3.8 miles of low-impact classified road (2.2 miles through the medium Old-growth Habitat Reserve). This road shortens the helicopter-yarding distance, which decreases the logging cost and increases net stumpage value. Portions of the road are within 330 feet of the bald eagle nest buffer and the beach/estuary buffer. This approach seeks to provide more economical timber volume, while minimizing road construction and reducing effects on the roadless character of the Cleveland Peninsula.

The objective of Alternative D is to balance the timber economics with resource and social concerns related to the roadless area. It would emphasize uneven-aged management by using selection harvest methods and, like Alternative C, would schedule subsequent entries over intervals of 50 years. In order to implement these prescriptions, helicopter yarding would be needed even though some of the units are adjacent to roads and are planned for cable yarding in Alternative B.

Road width would be 14 feet, with a clearing width up to 55 feet, and the surface would be outsloped, with no ditch except in turnarounds. This would eliminate the need for ditches and reduce sedimentation in streams. Log-stringer bridges would be used to cross Class I, II, and III streams. Culverts would drain Class IV streams. Road construction would include three 1-acre rock pits. Two of these rock pits would be in the medium Old-growth Habitat Reserve.

Roads would be closed to public traffic during the timber sale contract. All roads would be closed to all motorized vehicles when harvest operations are complete. Closure would include log-stringer bridge removal, culvert removal and storm proofing (water bar construction). In addition, the first section of the road, within beach sight distance, would be covered through the placement of debris, such as rocks, root wads, and large wood pieces on the road surface.

This alternative would construct a land-to-barge LTF site. The LTF would be removed when harvest operations are complete. The bulkhead would be removed and the rock fill would be spread on the site. Debris barriers would be placed on the site to discourage vehicle off-loading.

A sortyard and land camp could be located in the OGR, near the LTF, to facilitate work between the units and the LTF. The purchaser could also choose to utilize a floating camp. The contractor would be responsible for obtaining appropriate permits for an approved site.

Comparing the Alternatives

This section compares outputs, objectives and effects of the alternatives in terms of the key issues for the Emerald Bay project. The discussions of effects are summarized from Chapter 3, which provides a full description and analysis of effects. Table 2-2 compares the alternatives by issue. This information is used in the discussions that follow.

Table 2-2
Comparison of Alternatives by Issue

	Unit of Measure	Alt. A	Alt. B	Alt. C	Alt. D
Issue 1: Timber Sale Economics					
Harvest volume ¹	CCF ²	0	32,749	24,359	24,783
Harvest volume ¹	MBF ³	0	16,373	12,179	12,391
Average harvest cost	\$/CCF	0	\$169	\$403	\$241
Net stumpage value ⁴	\$/CCF	0	\$5	- \$207	-\$78
Employment	jobs/year	0	86	64	65
Issue 2: Roadless and OGR Values					
New classified road in Timber LUD	mile	0	5.8	0	3.8
New classified road in OGR	mile		2.2	0	2.2
New temporary road in Timber LUD	mile	0	0.4	0	0
LTF construction	#	0	1	0	1
Rock pits in OGR	#	0	2	0	2
Roadless character affected	acres	0	2,878	0	1,128
Roadless area affected	%	0	1.5%	0	0.6%

¹Harvest volume for Alternatives B and D includes road right-of-way clearing

²CCF = hundred cubic feet

³MBF = thousand board feet

⁴NEAT 1st Quarter 2004

Source: M. North

Issue 1: Timber Sale Economics

Alternative A proposes no timber harvest, and thus offers no opportunity for timber-related employment or income.

Alternative B offers the most timber volume, generates the highest potential number of jobs, and has the lowest average overall harvest cost per CCF. Alternative B has a positive value for 11 of the 12 quarters in the analysis period, and is most likely to sell under current market conditions. Average harvest costs would be \$168.84 per CCF. This alternative has a positive value of \$5.01 per CCF in the 1st quarter of 2004, and is positive 11 out of 12 quarters in the analysis period.

Alternative C offers the least timber volume and has the highest average overall harvest cost per CCF. Alternative C appraised deficit in all quarters of the analysis period, and is not likely to sell under current market conditions. Average harvest costs would be \$403.08 per CCF. This alternative has a negative value of \$207 per CCF in the 1st quarter of 2004.

Alternative D falls between Alternatives B and C in harvest cost and timber volume. Alternative D appraised deficit in all quarters of the analysis period. Although the current net stumpage value is negative (\$-78 per CCF in the 1st quarter of 2004), this alternative appraised positive in the Emerald Bay Timber Sale Final EIS (2001).

Issue 2: Roadless and OGR Values

Alternative A would have no effect on Cleveland Roadless Area #528 or the medium Old-growth Habitat Reserve.

Alternative B would affect the roadless characteristics of 2,878 acres in the Cleveland Roadless Area #528 by road construction and clearcut harvest. This alternative would have the greatest effect on roadless characteristics of all the action alternatives.

Alternative C would not include road construction or clearcuts. The project area would retain roadless characteristics.

Alternative D would affect the roadless characteristics of 1,128 acres; however, partial-harvest treatment areas would retain their roadless characteristics.

None of the alternatives would render the Cleveland Roadless Area #528 ineligible for wilderness designation.

Alternatives Not Analyzed in Detail

Other alternatives were considered in varying detail before being eliminated from complete analysis. These alternatives fall within three major categories – design of units and logging systems to be more economical, alternate routes to avoid construction in the medium OGR, and redesigning the medium OGR and reallocation the LUDs.

Alternative Road Locations

The IDT evaluated five alternative road routes to access the project and avoid crossing medium OGR. High construction costs, long haul distances, and steep, rugged slopes preclude a reasonable road connection. None of these alternative road locations were shown to be economically viable. In addition, four of the five routes crossed small or medium old-growth reserves. Alternatives using different access routes were eliminated. These alternate routes are described in Chapter 3, Transportation. All routes were more expensive to construct and had other effects to resources. Briefly, they are:

- **Sunny Bay:** This route would require construction across extremely steep, unstable slopes, a new LTF in Sunny Bay and an easement for the road and LTF.
- **Frosty Bay High and Frosty Bay Low:** These routes would cross an OGR, have long haul routes (about 20 miles) and require an easement across State Lands.
- **Snail Point:** This route would cross an OGR, have haul routes of about 13 miles and require an easement across State Lands. In regard to this parcel of land, the State has requested that the Forest Service not conduct timber harvest or road construction in this area.
- **Bluff Point:** This route would cross an OGR, have haul routes of about 13 miles and require an easement across State Lands.

Adjustments to Old-growth Reserves

The IDT evaluated four options to move the medium OGR to avoid having a road corridor, LTF, sortyard, and camp in the OGR. The four options would require a considerably larger land base to meet Forest Plan direction for size and spacing of medium OGRs. Options 1, 2, and 3 are more linear in shape while Option 4 tends to be more compact. Options 2 and 3 would likely result in isolated Timber Production LUD acres. Due to these reasons, detailed analysis of these options was not pursued. These options are summarized below and discussed in more detail in Chapter 3, Biodiversity section.

- **Option 1:** Using the portion of the existing medium OGR north of Emerald Creek, extending to the Wrangell Ranger District north of the project area, and then adding

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additional area on the west end of Spacious Bay. This option would encompass about 14,762 acres.

- **Option 2:** Using the portion of the existing medium OGR south of the proposed road corridor and extending it to the east around the south side of the project area and Wasta Creek, bounded on the east about half way to Yes Bay. This option would encompass about 20,067 acres.
- **Option 3:** Using the portion of the existing medium OGR south of the proposed road corridor and extending it to the east around the south side of the project area and Wasta Creek easterly to the west end of Spacious Bay, then southerly to the south end of Vixen Inlet. This option would encompass about 20,643 acres.
- **Option 4:** Using the portion of the existing medium OGR south of the two creeks that join Spacious Bay and Vixen Inlet, southerly to the head of Vixen Inlet and to the east about 4 miles. This option would encompass about 15,903 acres.

Timber Harvest Unit Design, Silvicultural Prescriptions and Logging Systems

Most of the alternatives eliminated were similar to the alternatives analyzed in detail.

- **Cable harvest and clearcut on portions of Units 1 and 12 that are accessible by road:** An alternative that proposed traditional cable harvest and clearcut prescriptions on the portions of Units 1 and 12 accessible by road in Alternative D was considered. This alternative represented a minor recombination of aspects of Alternatives B and D, and is within the range of alternatives already considered in detail. Because it would involve clearcutting, this alternative raises some of the same issues as Alternative B.
- **Eliminate helicopter units and harvest less than 8 MMBF:** An alternative that would eliminate helicopter units and harvest less than 8 MMBF was investigated in direct response to a public comment. This would require using even-aged prescriptions, cable yarding, and road construction in order to make an economically viable offering with the effects similar to Alternative B. However, the costs of the infrastructure would remain the same. While this would result in less volume harvested, the road construction and clearcuts would make this alternative less responsive than Alternative C to overall concerns of providing an economical timber sale.
- **Modifying Alternative B with a shorter road network:** This is a modification of Alternative B, using the shorter road network as described in Alternative D. Since the effects of this alternative would be similar to the effects disclosed for Alternatives B and D, displaying them separately would not help to sharply define the issues or provide a clear basis for choice among the options.
- **Adding clearcuts to harvest in Alternative C:** Adding clearcuts to Alternative C would not improve the economics since it would require moving large volumes of small-diameter, low-value wood over long distances by helicopter. It would also be less responsive to the roadless and OGR values issue.
- **Other measures considered:** Measures to improve the economics of helicopter yarding in Alternatives C and D were considered: units with the longest yarding distance were deferred to decrease yarding distance, timber utilization standards were changed to minimize moving low-value wood, and allowing export of the western redcedar was considered to increase the return. The NEAT analysis of these measures did not result in a noticeable improvement in the economics of any of the alternatives. See the Silviculture and Timber section in Chapter 3.
- **Keeping roads open for public and maintaining the LTF:** This was considered in response to public comments. This would result in increased maintenance costs and

would increase the effects on the roadless and OGR values. This alternative would be less desirable both environmentally and economically.

Mitigations

The analysis documented in this SEIS discloses the possible adverse effects that may occur from implementing the actions proposed under each alternative. Measures were formulated to mitigate or reduce these effects guided by the direction from the Forest Plan. Project-specific mitigation measures are listed below and on the unit and road cards (Appendices D and E in the Draft SEIS).

Old Growth

Since new road construction is generally inconsistent with Old-growth Habitat LUD management, road use is limited to logging traffic only. No public motorized use of the road would be allowed. Upon completion of the timber sale, the roads would be put into storage and closed to all motorized use.

LTF and Scenery

The LTF and operating site would be removed after harvest operations are completed in Alternatives B and D. The rock fill would be spread on the operating area.

A road leading to the LTF would also be built in Alternatives B and D. The potential visual impact of the road accessing the LTF would be mitigated by aligning it to be screened by a buffer of trees, and paralleling slope contours as much as possible to avoid leaving a visible notch created by the right-of-way (ROW) clearing. This would reduce the impact and this segment of road would meet the VQO of Retention.

Threatened, Endangered, and Sensitive Species

To prevent disturbance to sea lions (agreement with NMFS 12/18/2000), project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout on Easterly Island. Floating camps and helicopter to barge operations (Alternative C) would be required to maintain a 1-mile distance. Project-associated aircraft would be required to remain at least 0.5 mile horizontal and 1,500 feet vertical distance from the haulout.

Log transfer facilities (LTFs) will be kept clear of dangling cables, ropes, and other materials that could entrap humpback whales (NMFS letter 10/30/2000). Consistent with the Marine Mammal Protection Act, project-associated boats and barges in transit are required to remain at least 100 yards from humpback whales.

Wildlife

An occupied red-tailed hawk nest was found in the northern portion of Unit 10. Applicable standards and guidelines (600-foot windfirm buffer) will be applied as long as the nest remains occupied. The seasonal restriction around occupied nests is March 1st to July 31st. Occupancy surveys will be conducted annually.

Monitoring

Monitoring activities can be divided into three broad categories: Forest Plan monitoring, routine implementation monitoring, and project-specific effectiveness monitoring. The National Forest Management Act requires that national forests monitor and evaluate their Forest Plans (36 CFR 219.11). The Forest Plan (Chapter 6) includes the monitoring and evaluation activities conducted as part of Forest Plan implementation.

2 Alternatives

Forest Plan Monitoring

Tongass National Forest staff and representatives from other Federal and State agencies annually conduct an interdisciplinary review of BMP implementation and effectiveness. The results of this and other monitoring are summarized in the Tongass National Forest Annual Monitoring and Evaluation Report. This report provides information about how well the management direction of the Forest is being carried out, and measures the accomplishment of anticipated outputs, activities and effects.

Routine Implementation Monitoring

Routine implementation monitoring assesses whether a project was implemented as designed and whether or not it complies with the Forest Plan. The unit and road cards are the basis for determining whether recommendations were implemented for various aspects of the project. Routine implementation monitoring is part of timber sale contract administration. Certified sale administrators and road inspectors ensure that the prescriptions contained on the unit and road cards are incorporated into contract documents and monitor performance relative to contract requirements. Input by resource staff specialists, such as fisheries biologists, soil scientists, hydrologists and engineers is regularly requested during this implementation monitoring process. These specialists provide technical advice when questions arise during project implementation.

Project-specific Effectiveness Monitoring

Effectiveness monitoring seeks answers about the effectiveness of design features or mitigation measures in protecting natural resources and their beneficial uses. Road use during and following harvest is monitored to determine whether closure features are sufficient to preclude motorized access. Harvest units would be monitored 3 years after harvest to determine if regeneration is successful.

Heritage

Post-construction monitoring of a sample of roads and units would be implemented to further evaluate the sensitivity model.

Silviculture

Post-harvest activities applied to Alternatives B, C and D would include regeneration surveys as well as evaluation of residual stands. The LTF will be removed after harvest is complete.

Transportation

Road use during and following harvest would be monitored to determine whether closure measures are sufficient to preclude all motorized use.

Wildlife

An occupied red-tailed hawk nest was found in the northern portion of Unit 10. Applicable standards and guidelines (600-foot windfirm buffer) will be applied as long as the nest remains occupied. The seasonal restriction around occupied nests is March 1st to July 31st. Occupancy surveys will be conducted annually.

Marine Environment

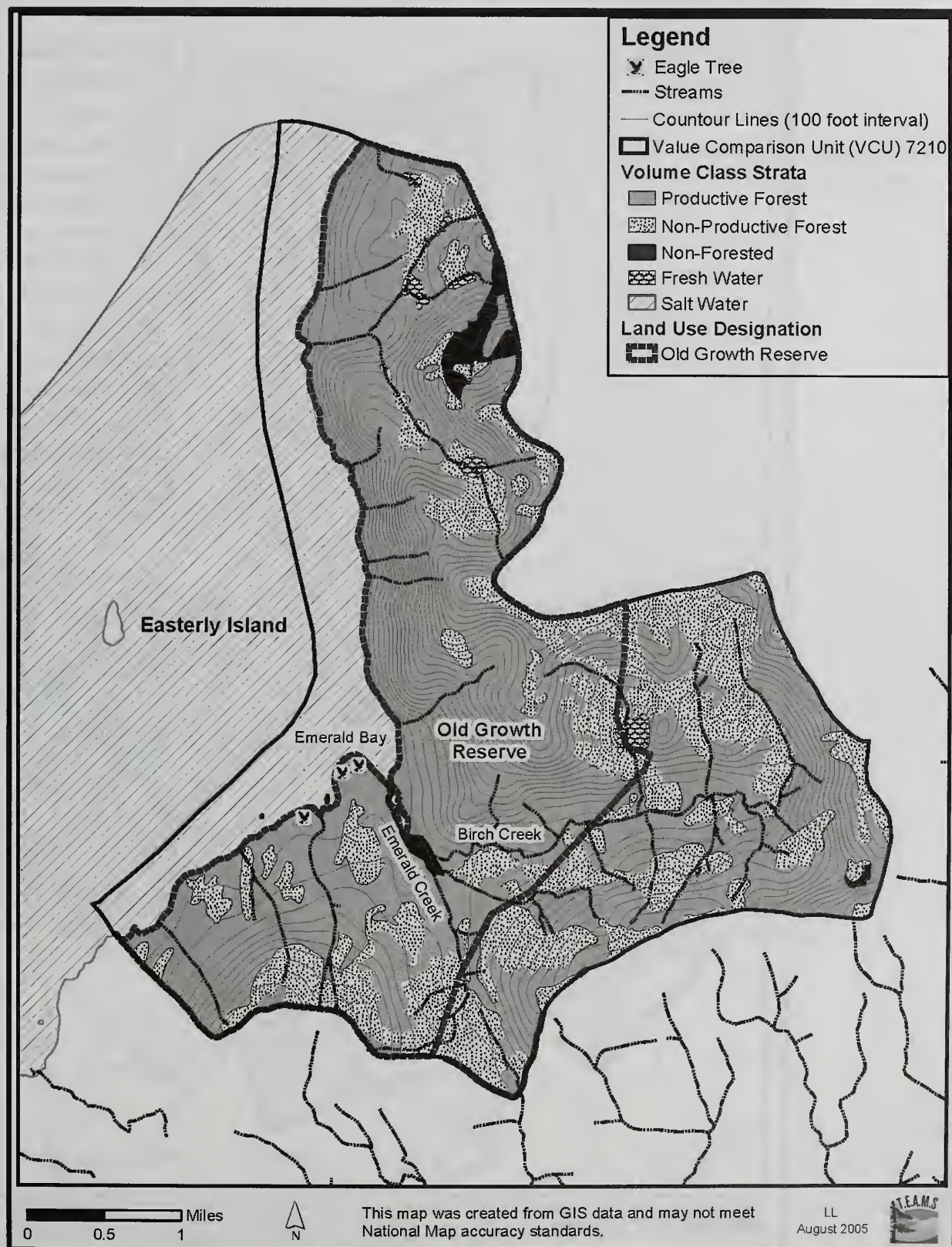
Conduct annual dives and complete dive reports on the active LTF.

Fisheries

A Management Indicator Species (MIS) monitoring site for resident salmonids was located and delineated on the ground in the Birch Creek sub-basin. Monitoring of this site began in July 2001 and would continue after timber harvest is complete.

If additional streams were found during project layout, the same Standards and Guidelines would be applied. Future monitoring would focus on the application and adequacy of buffer prescriptions.

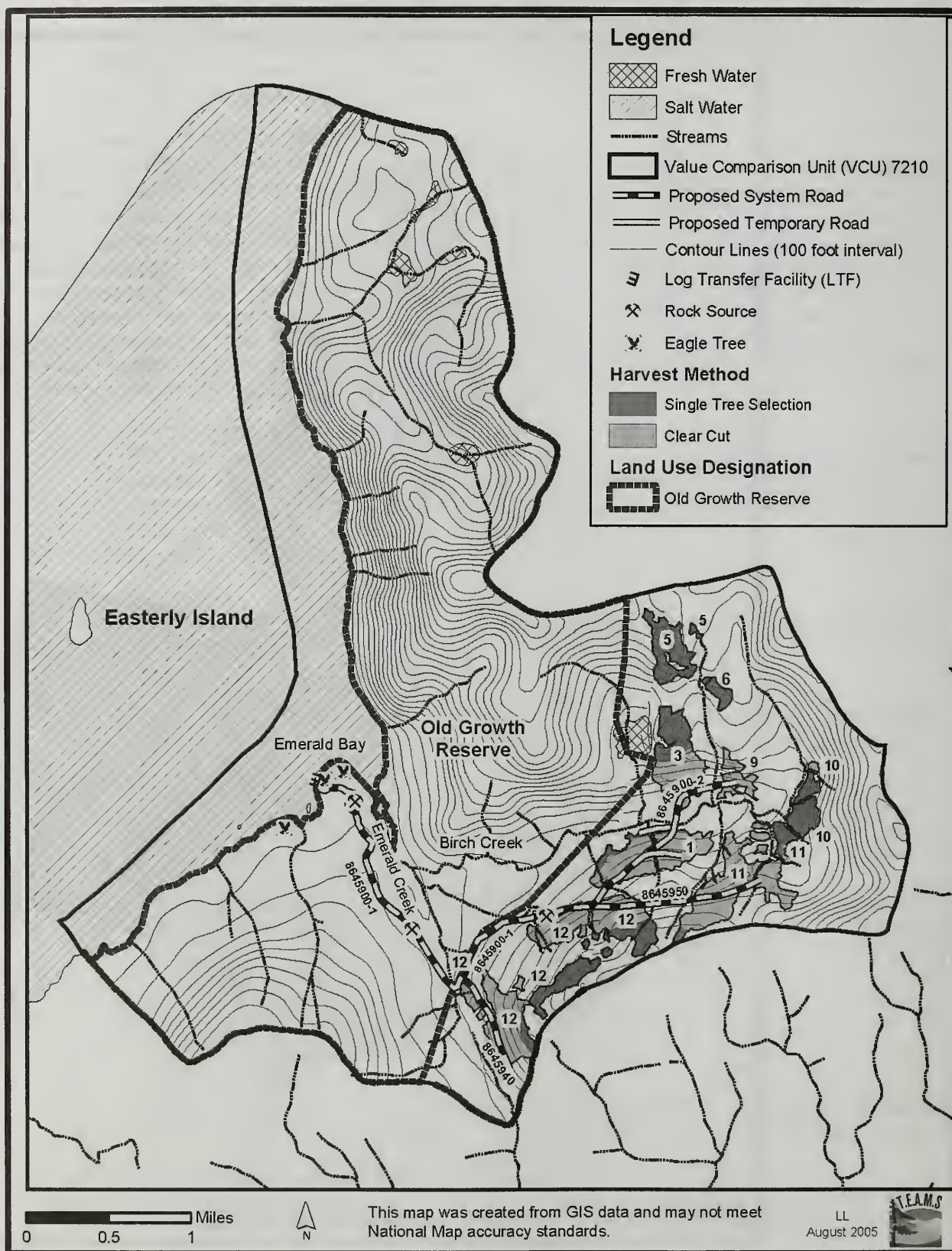
Figure 2-1
Alternative A Map



Source: GIS, TEAMS, L.LaPorta, 2005

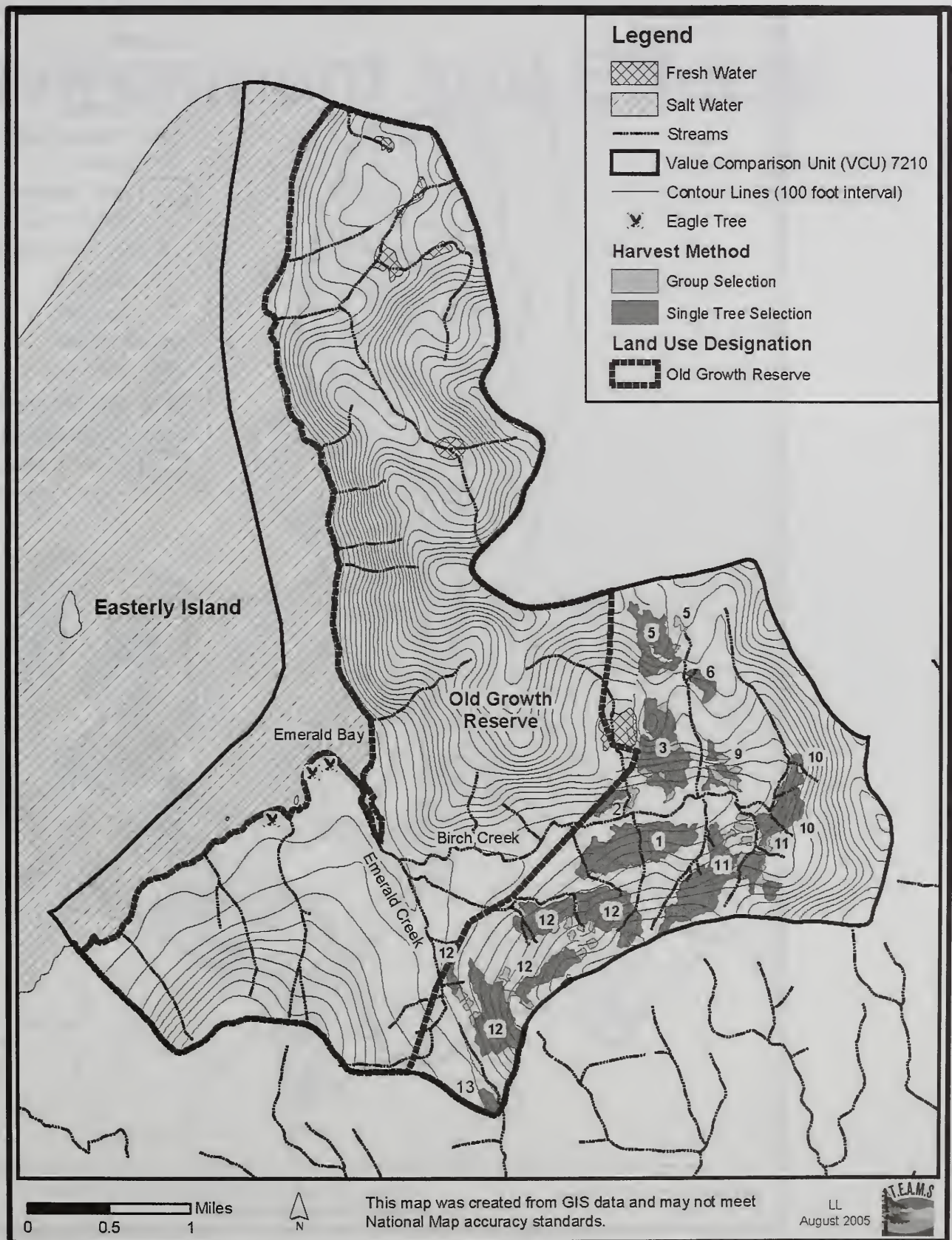
2 Alternatives

Figure 2-2
Alternative B Map



Source: GIS, TEAMS, L.LaPorta, 2005

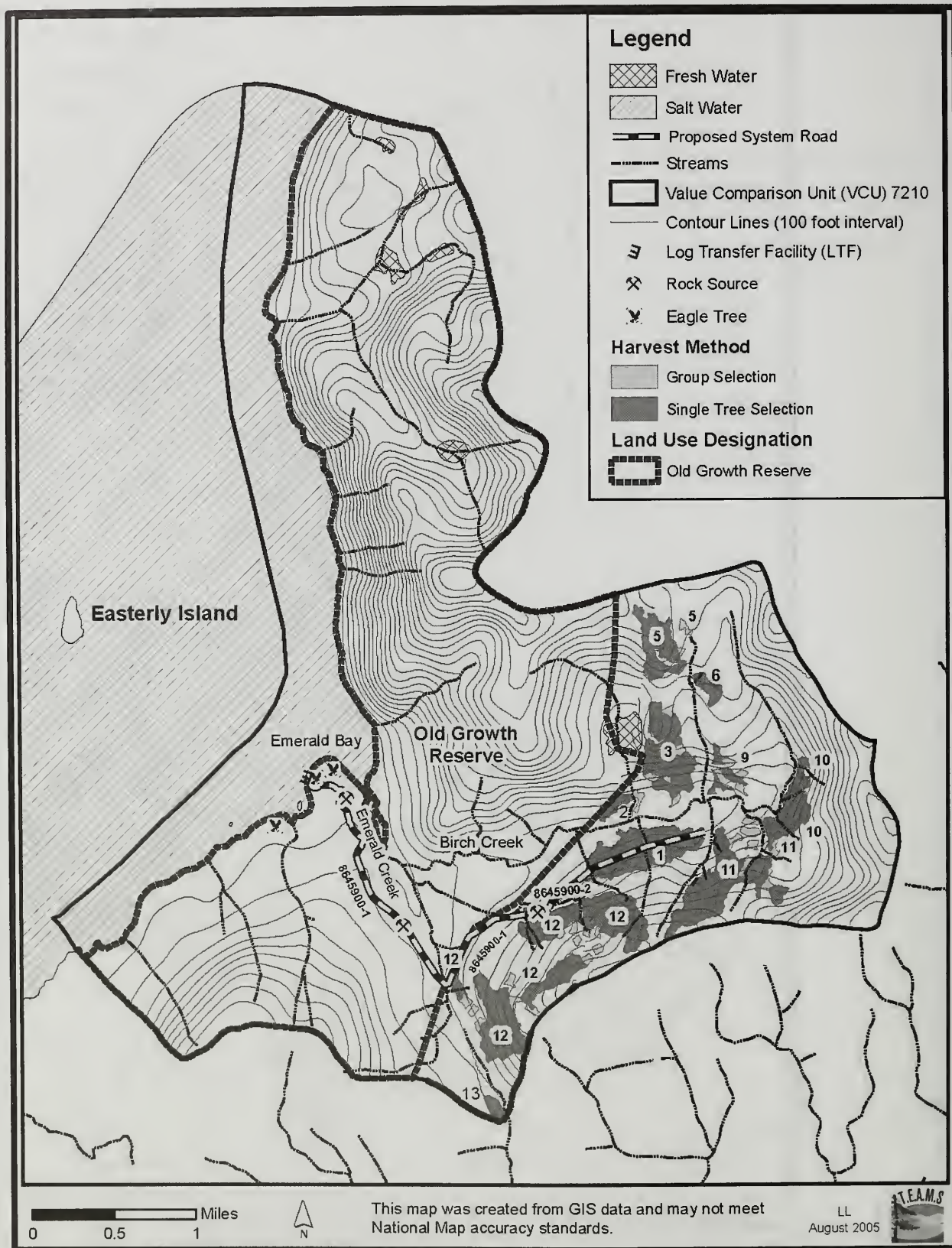
Figure 2-3
Alternative C Map



Source: GIS, TEAMS, L.LaPorta, 2005

2 Alternatives

Figure 2-4
Alternative D Map



Source: GIS, TEAMS, L.LaPorta, 2005

Chapter 3

Environment and Effects

Chapter 3

Environmant and Ethics



Chapter 3

Environment and Effects

Introduction

This chapter provides information about the existing environment of the Emerald Bay project area and the potential effects of the proposed project. It presents the summary of scientific data and analytical basis for comparing alternatives introduced in Chapter 2. It describes current condition and potential effects to each resource by the alternatives. It discloses direct, indirect, and cumulative effects. Effects are quantified where possible, and qualitative discussions are included. The means to reduce (mitigate) potential adverse effects are described.

The discussions of resources and potential effects use existing information included in the Forest Plan FEIS, other project EISs, project-specific information, and other sources as indicated. This information is summarized and referenced to minimize duplication. The planning record for the Emerald Bay project includes project-specific information and results of field investigations. The record also contains information from public involvement efforts. The planning record is located at the Ketchikan-Misty Fjords Ranger District Office in Ketchikan, Alaska. It is available for review during regular business hours. Information from the record is available on request.

Land Divisions

The land area of the Tongass National Forest is divided in several ways to describe the different resources and their analysis areas. These divisions vary by resource since the relationship of each resource to geographic conditions also varies. One division is Forest Plan land use designations (LUDs) (discussed in Chapter 1). Two other divisions used in this analysis are value comparison units (VCUs) and wildlife analysis areas (WAAs).

Value Comparison Units (VCUs)

These are distinct geographic areas that encompass a drainage basin containing one or more large stream systems. VCU boundaries usually follow major watershed divides. The Emerald Bay project area consists of one VCU, number 7210, as discussed in Chapter 1. VCU 7210 is shown on Figure 3-1.

Wildlife Analysis Areas (WAAs)

WAAs are land divisions used by the Alaska Department of Fish and Game to track game populations and hunter success. The Emerald Bay project area is part of WAA 1817. The WAA is used to analyze information in the Wildlife and Subsistence sections of Chapter 3. WAA 1817 is also shown on Figure 3-1.

Analyzing Effects

Environmental consequences are the effects of implementing an alternative on the physical, biological, social, and economic environment. Council on Environmental Quality (CEQ)

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regulations implementing the National Environmental Policy Act (NEPA) include a number of specific categories to use for analyzing environmental consequences.

Direct, Indirect and Cumulative Effects

Direct environmental effects occur at the same time and place as the initial cause or action. Indirect effects result from the activity but are spatially removed from the activity or occur later in time, but within the foreseeable future. Cumulative effects result from incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Past Activities

Fourteen acres of the medium old-growth reserve in the project area were harvested in the late 1930s. Historically, single-tree beach harvest has occurred in scattered locations (see paragraph "Cumulative Effects Analysis" on page 2-2).

Present Activities

Mineral exploration is taking place on Mt. Burnett between Vixen and Union Bays (Chapter 1, Figure 1-1). This activity is 6 miles southwest of the Emerald Bay project area. The exploration consists of drilling test cores into the mountain for laboratory analysis for mineral content. The 12-foot x 12-foot drill pad is helicopter lifted to various sites on the mountain. The holes are being sealed upon the departure of the drill rig and pad. This mineral exploration started in 2001. The 2005 plan of operation is to drill up to 30 test holes. There are no plans for commercial mining at this site within the foreseeable future.

Mineral reclamation work is expected to start in 2005 at the Gold Standard mining claim in Helm Bay. This activity is 15 miles south of the Emerald Bay project area. The activity includes closing seven old mine entrances for safety purposes. The work is estimated to be completed in 2005.

Reasonably Foreseeable Future Actions

Future additional projects in the general vicinity of the Emerald Bay project would not contribute to cumulative effects because of their distance and timing. These include:

Sunny Bay project, located approximately 1 mile north of the project area on the Wrangell Ranger District. It is on the 2004 Timber Sale 10-year Schedule as 20 MMBF to sell in 2011. No planning has begun yet for this project. The area is in a separate watershed and the future road system would not connect to the Emerald Bay project area because of steep rugged terrain (see Chapter 2, Alternatives Eliminated from Detailed Study).

Unavoidable Adverse Effects

Unavoidable adverse environmental effects are those that cannot be effectively mitigated or avoided in project design. Many adverse effects can be reduced, mitigated or avoided by limiting the extent or duration of activities. The interdisciplinary procedure used to identify specific harvest units and roads is designed to eliminate or lessen significant adverse effects. The application of Forest Plan Standards and Guidelines, Best Management Practices, mitigation measures, and monitoring are intended to further limit the extent, severity, and duration of potential effects. Regardless of the use of these measures or the alternative selected, some adverse effects would occur.

Short-term Use and Long-term Productivity

Short-term use effects are those that occur annually or within the first few years of project implementation. Long-term productivity refers to the capability of the land and resources to continue producing goods and services long after the project has been implemented. Under the Multiple-Use Sustained Yield Act, and the National Forest Management Act, all renewable resources are to be managed in such a way that they are available for future generations. The harvesting and use of standing timber can be considered a short-term use of a renewable resource. As a renewable resource, trees regenerate and grow if the long-term productivity of

the land is maintained. This long-term productivity is maintained through the application of resource protection, in particular those applying to the soil and water resources.

Irreversible and Irretrievable Commitments

Irreversible commitments describe a loss of future options. Irreversible applies primarily to the effects of use of nonrenewable resources such as mineral extraction or destruction of a heritage resource site. Once these resources are gone, they cannot be replaced. Irreversible can also apply to factors such as soil productivity that are renewable only over long periods of time.

Irretrievable commitments apply to the loss of production, harvest, or use of natural resources. For example, some or all of the timber production from an area is lost irretrievably while an area is serving as a winter sports site. The production lost is irretrievable, but the action is not irreversible because if the use changes, it is possible to resume timber production.

The use of these terms in discussions of environmental consequences is found in 40 CFR 1502.16. The definitions above are found in the Forest Service handbook (FSH 1909.15, 05). The disclosure of effects in this chapter is organized by direct, indirect and cumulative effects. Where necessary, irreversible commitments are identified, but timber harvest and associated activities are generally considered irretrievable commitments of resources.

Available Information

Much of the Tongass National Forest resource data resides in an electronic database formatted for a geographic information system (GIS). GIS software is used to assist in the analysis of these data. GIS data is available in tabular (numerical) format, and as plots displaying data in map format. For this SEIS, the maps and most of the numerical analysis are based on updated GIS resource data. There is less-than-complete knowledge about many of the relationships and conditions of wildlife, fish, forests, jobs and communities. The ecology, inventory and management of a large forest area are complex and developing sciences. The biology of wildlife species prompts questions about population dynamics and habitat relationships. The interaction of resource supply, the economy, and communities is the subject matter of an inexact science. However, the basic data and central relationships are sufficiently well established in the respective sciences for the deciding official to make a reasoned choice between the alternatives, and to adequately assess and disclose the possible adverse environmental consequences.

Other Resources

Several resources are likely to remain unaffected by the Proposed Action or alternatives, or would not be affected to a significant degree. Resources or uses for which no measurable effects were identified are discussed briefly here.

Air Quality

All of the action alternatives would have limited, short-term effects on ambient air quality. Such effects, in the form of vehicle emissions and dust are short-term. The action alternatives could result in short-term supplies of raw wood products to local mills. It is the responsibility of the mill owner or sortyard operator to ensure that mill emissions are within legal limits.

Land Status

Under the Alaska Statehood Act of 1959, the State of Alaska is entitled to a certain amount of Federal land. The State was also allowed to identify for selection more acreage than would ultimately be conveyed to State ownership. The Alaska Native Claims Settlement Act granted Alaska Native corporations similar selection rights. There are no State or Alaska Native land selections or claims in the project area.

Minerals

There are no known mineral occurrences of commercial value in the Emerald Bay project area. Bureau of Land Management records indicate no mining claims or patented mining claim groups. The project would have no effect on mineral resources or exploration.

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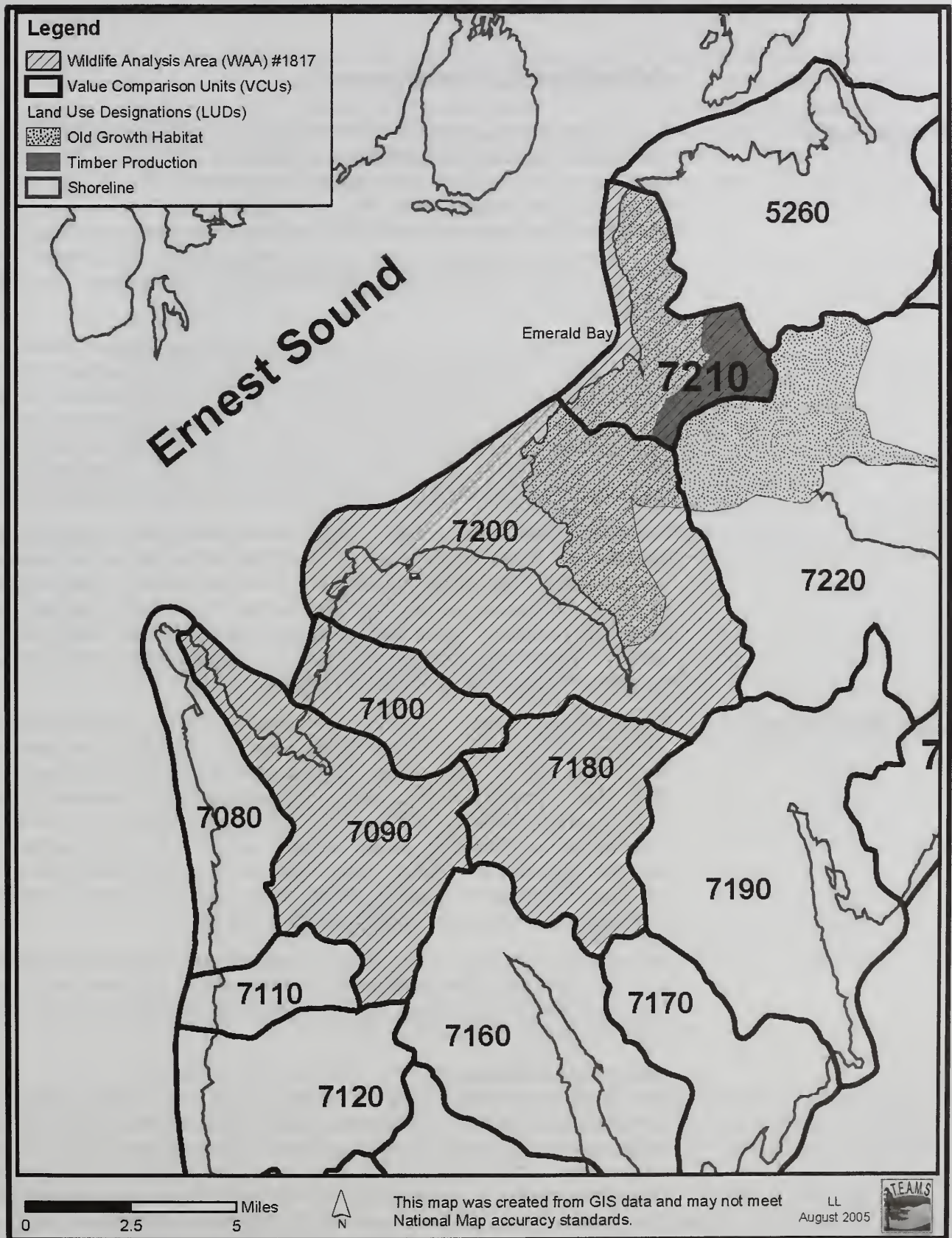
Plans of Other Agencies

CEQ regulations implementing NEPA require a determination of possible conflicts between the Proposed Action and the objectives of other Federal, State, and local land use plans, policies, and controls for the area. The major land-use regulations of concern are Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), the Coastal Zone Management Act (CZMA), and the State of Alaska's Forest Practices Act. ANILCA Section 810 requirements pertain to subsistence; these are discussed in the Subsistence section of this chapter.

The CZMA was passed by Congress in 1976 and amended in 1990. This law requires Federal agencies conducting activities or undertaking development affecting the coastal zone to ensure that the activities or developments are consistent with approved State coastal management programs to the maximum extent practicable. The State of Alaska passed the Alaska Coastal Management Act in 1977, to establish a program that meets the requirements of the CZMA. In 1990, the State passed a revised Alaska Forest Practices Act. For Federal timber sales, the Forest Practices Act provides the standards to be used for a determination of consistency with the Alaska Coastal Management Act. It also provides specific stream buffer requirements.

The Forest Service has evaluated the alternatives to ensure that the activities and developments affecting the coastal zone are consistent with approved coastal management programs to the maximum extent practicable. Forest Plan Standards and Guidelines, and management practices incorporated into project design meet or exceed those indicated by the Alaska Coastal Management Act and the Alaska Forest Practices Act. The layout of all proposed harvest units would comply with Forest Plan Standards and Guidelines for riparian management areas, which meet or exceed the stream buffer requirements in the Forest Practices Act.

Figure 3-1
Wildlife Analysis Area 1817 and VCUs in the Project Vicinity



Source: GIS, TEAMS, L.LaPorta 2005

Biodiversity and Old-growth

Affected Environment

Biodiversity

National Forest Management Act (NFMA) regulations define diversity as the distribution and abundance of different plant and animal communities and species. Biological diversity, or biodiversity, refers not only to the variety of organisms in an area; it also includes their genetic composition, the complex pathways that link organisms to one another and to the environment, and the processes that sustain the whole system. For instance, in an old-growth forest ecosystem, much of the biodiversity is found within stands of old growth: variations in tree heights and species, differences in understory species, the presence of small openings within a stand, etc.

In Southeast Alaska, old-growth forests are primarily comprised of western hemlock and Sitka spruce and are distinctively heterogeneous. Sporadic, low- to moderate-severity disturbances are an integral part of the internal dynamics of these old-growth forests. Large trees die and fall to the forest floor creating openings that allow light to penetrate to the forest floor and release understory vegetation. These openings give rise to patches of small trees, shrubs, and herbs in the understory. Refer to the Forest Plan FEIS (pp. 3-11 through 3-39) and the FSEIS (pp. 3-28 through 3-3-44) for detailed discussions of Forest-wide biodiversity components.

The Emerald Bay area is a mosaic of multi-storied Sitka spruce, western hemlock, western redcedar, and Alaska yellow-cedar old-growth timber interspersed with scrub/shrub muskegs, non-forested muskegs, alpine meadows and lichen rock outcrops. Snags and down logs are abundant. Common understory vegetation includes huckleberry, blueberry, salmonberry, menziesia, bunchberry, skunk cabbage and five-leaved bramble. Refer to the Silviculture section in this chapter for further discussion on tree species composition and diameters, natural disturbance (windthrow), and resulting stand descriptions.

Viability Analysis

The NFMA regulations also include the concept of wildlife (vertebrate) species viability, requiring that fish and wildlife habitats be managed to maintain viable populations of species in the planning area (national forest). The Forest Plan contains a comprehensive two-part conservation strategy to maintain viable and well-distributed populations of species associated with old-growth forests (Forest Plan FEIS 3-382). This strategy, in addition to the application of the Forest Plan Standards and Guidelines, is integral to protecting and providing habitat to maintain viable fish and wildlife populations. The underlying assumption is that the maintenance of functioning ecosystems, achieved by protecting large, interconnected blocks of habitat, would conserve the species associated with them.

Project areas are not expected to independently maintain viable populations because of their relatively small size. However, management activities in such areas need to consider project-level contributions to the Forest-wide strategy. Both components are discussed in more detail in the Old Growth sections that follow.

Old-growth Reserves

The first component of the old-growth strategy is a system of large, medium and small old-growth reserves (OGRs) to maintain contiguous blocks of old-growth forest habitat in combination with other non-development land use designations (LUDs). Old-growth forest is important as wildlife habitat for old-growth associated species such as Sitka black-tailed deer, marten, black bears, Vancouver Canada geese, and cavity or snag-dependent species such as flying squirrels, woodpeckers, and owls. The combination of a dense canopy with scattered small openings that is characteristic of old-growth forests allows forage to grow under the openings, while the large limbs within the canopy provide thermal insulation and intercept

enough snowfall to allow access to forage during the winter. Large dead or defective trees provide nesting sites for martens, wrens and chickadees, as well as feeding sites for woodpeckers, sapsuckers, brown creepers, and others. Woody debris provides habitat for smaller prey species and provides micro-sites on which seedlings may grow.

The Emerald Bay project area (VCU 7210) contains part of a medium OGR and is surrounded on three sides by reserves making a continuous habitat reserve of 21,300 acres. The medium OGR comprises 67 percent of the project area so VCU 7210 does not require a small OGR. The project area is bounded on the south by the remainder of the medium OGR and a small OGR in VCU 7200. It is bounded on the east by the small OGR in VCU 7220. The medium OGR meets Forest Plan requirements. It is 11,530 acres in size, contains 7,345 acres of productive old growth (POG), with 2,694 acres being high volstrata POG. Specific criteria for reserves are included in the Forest Plan (page 4-120 and Appendix K).

Productive old growth (POG) is old growth capable of producing at least 20 cubic feet of wood fiber per acre per year or having greater than 8,000 board feet per acre. POG is separated into high, medium, and low volstrata (Forest Plan p. 7-31, Forest Plan FEIS p. 3-19).

If small OGRs, as initially mapped in the Forest Plan, fail to meet these criteria, an interagency team of biologists representing the Forest Service, U.S. Fish and Wildlife Service (USFWS), and Alaska Department of Fish and Game (ADF&G) cooperatively evaluate the small OGRs and provide a consensus biological recommendation on boundary and/or location changes. Small OGR locations and habitat components in and adjacent to the project area were assessed for compliance to the Forest Plan during an interagency meeting on January 22, 1999. The interagency review team concluded VCUs 7200 and 7220 met Forest Plan requirements (Table Old Growth-1) and no modifications were needed. The team recommended one change within the WAA: the small OGR in VCU 7180. This OGR is well outside the project area and the recommendation is not considered in this analysis.

Table Old Growth-1
Emerald Bay Small Old-growth Reserves

	VCU 7200	VCU 7220
Small reserve acres:		
Existing Forest Plan OGR	959 ¹	8,811
Required (minimum acres)	3,865	5,050
Proposed change	None	None
POG acres:		
Existing Forest Plan OGR	146 ²	2,964
Required (minimum acres)	1,932	2,525
Proposed change	None	None

¹ VCU 7200 also contains 6,260 acres of medium OGR

² VCU 7200 also includes 3,034 acres of POG in the medium OGR

Source: Forest Service GIS, Interagency Team Review

Productive Old Growth and Connectivity

The second component of the old-growth strategy is the protection and connectivity of old growth outside the reserves (the "matrix") that is subject to timber harvest (Forest Plan FEIS Appendix N). This old growth maintains natural diversity for non-migratory species, provides important connectivity between OGRs, and promotes genetic mixing among populations that are unlikely to cross large areas of non-forest or second growth. In addition, old-growth patches sometimes serve as the only habitat in a landscape for many lichens, fungi, bryophytes, plants, and small mammals. These patches may be critical for species that are locally endemic,

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occur only in very specific conditions of forest structure or soil, or have limited dispersal capabilities (Forest Plan FEIS p. 3-24).

The connectivity between habitat blocks in a landscape can be very important for maintaining diversity (Noss 1983). Corridors can function in different ways, depending on width and other characteristics. Some "interior species" (species that do not inhabit the outer edges of old-growth forests) will not live in or even migrate through extensive lengths of unsuitable habitat (Forman and Godron 1981). Habitat corridors can also minimize isolation and decline of wildlife species associated with the old-growth blocks (Harris 1984, Hunter 1990). The Forest Plan directs that habitat connectivity be addressed at the project level to assess whether blocks of contiguous old-growth forest habitat between large and medium reserves and other natural setting LUDs are maintained (Forest Plan 4-120). OGRs, riparian areas, beach / estuary buffers, and other areas (including stands deemed inoperable for timber harvest because of unstable soils, steep slopes, economic isolation, or other factors) contribute to connectivity between old-growth blocks

The project area currently contains large blocks of old growth. Fragmentation in the project area is a result of natural vegetation structure and natural disturbance regimes. Approximately 14 acres were selectively harvested along Emerald Creek about 60 to 80 years ago, but the harvest is not obvious to the casual observer (see "existing harvest" in the Fisheries Section). There are no roads in the project area.

The various volstrata levels of POG are used to describe important habitat for wildlife management indicator species (see Wildlife section). Table Old Growth-2 displays the breakdown of old growth in project area. The majority of the productive old growth and the largest forest blocks are located in the medium old-growth reserve.

Table Old Growth-2
Productive Old Growth in the Project Area (VCU 7210)

	Acres	Percent of the Project Area ¹
POG – high volstrata	2,347	30%
POG – medium volstrata	1,608	20%
POG – low volstrata	1,302	17%
Unproductive old growth	2,404	31%

¹There is about 1 percent each of freshwater and non-forest whose acres are not reflected in this table.
Source: Forest Service, GIS Volstrata.

Coarse Canopy

Coarse canopy textured stands are associated with tall, large-diameter trees on highly productive sites with low to moderate canopy closures. They provide a high level of snow interception and are therefore especially important to wildlife during the winter. Caouette, et al. (2000) analyzed the differences in various methods of describing forest stands at a large scale. They found that volume class designations for the Tongass portray forest stand structure more accurately than the newer method of classifying high, medium, or low volstrata. High volume classes (volume classes 6 and 7) currently are the best available portrayal of coarse canopy stands (Cole letter, 2005). According to the Forest GIS database, there are 597 acres of volume class 6 and 7; all stands occur within the OGR. Some additional patches were found during unit reconnaissance and additional areas are likely, but have not been confirmed.

Environmental Consequences

Effects of Alternatives on Biodiversity

Following clearcut logging of old-growth forest, the stands that subsequently develop are even-aged (Harris and Farr 1974) and tend to contain a higher percentage of Sitka spruce and a lower percentage of cedars. Clearcutting differs from natural disturbances (Harris 1989) in that it represents a large-scale change (up to 100 acres, typically) rather than dispersed small (1 to 20 acres, typically) partial blowdown patches. It also differs in that nearly all trees are felled, whereas in natural disturbances many trees remain standing or partially standing. Another review found that clearcut sizes had a normal distribution around 45 to 50 acres, but most blowdown patches were less than 50 acres (Nowacki and Kramer 1998).

There would be no change under Alternative A. Natural processes would continue.

Analysis by Deal (2001) showed that the effects of partial cutting increased as basal area harvested increased. Plant community structure (diversity and abundance of species) differed statistically from uncut plots in areas where at least 50 percent of the basal area was removed. These plots were still less impacted than clearcuts. Plant community structure was negatively correlated with tree density and proportion of western hemlock in the regenerating stand. Alternative B proposes 205 acres of uneven-aged management whereas Alternatives C and D propose 620 acres. Proposed partial cutting would remove approximately 50 percent of the basal area from these units. Therefore, partial cutting in Alternative B would alter plant community structure on 4 percent of the existing POG in the project area; Alternatives C and D would alter structure by 12 percent.

Canopy closure would be variable, ranging from 5 to 50 percent (see Silviculture effects section).

Only Alternative B proposes clearcutting. The effects of clearcutting are well documented for Southeast Alaska (Deal 2001). For the short term (e.g. next 10-20 years), forbs and shrub composition increases over existing conditions. Total understory biomass may be 10-15 times greater than previous levels, but digestible protein levels are often less (Forest Plan FEIS, pg. 3-366). Over the long term, forbs and shrub composition would decrease in abundance and diversity. Regenerating conifers are anticipated to out-compete forbs and shrubs 25 to 35 years after harvest. Without stocking control, this stem exclusion stage can persist for over 100 years (Alaback 1984). Alternative B would clearcut 396 acres and alter plant community structure and composition by an additional 8 percent.

In summary, Alternative A would maintain existing old-growth habitat. Alternatives B, C and D would reduce total POG by 12 percent.

Viability

Viability is addressed in relation to the Forest Old Growth Strategy as discussed in the Forest Plan, Forest Plan FEIS, and Forest Plan Appendix N. Project effects on wildlife abundance and distribution are analyzed in the Threatened, Endangered, and Sensitive Species section and the MIS portion of the Wildlife section.

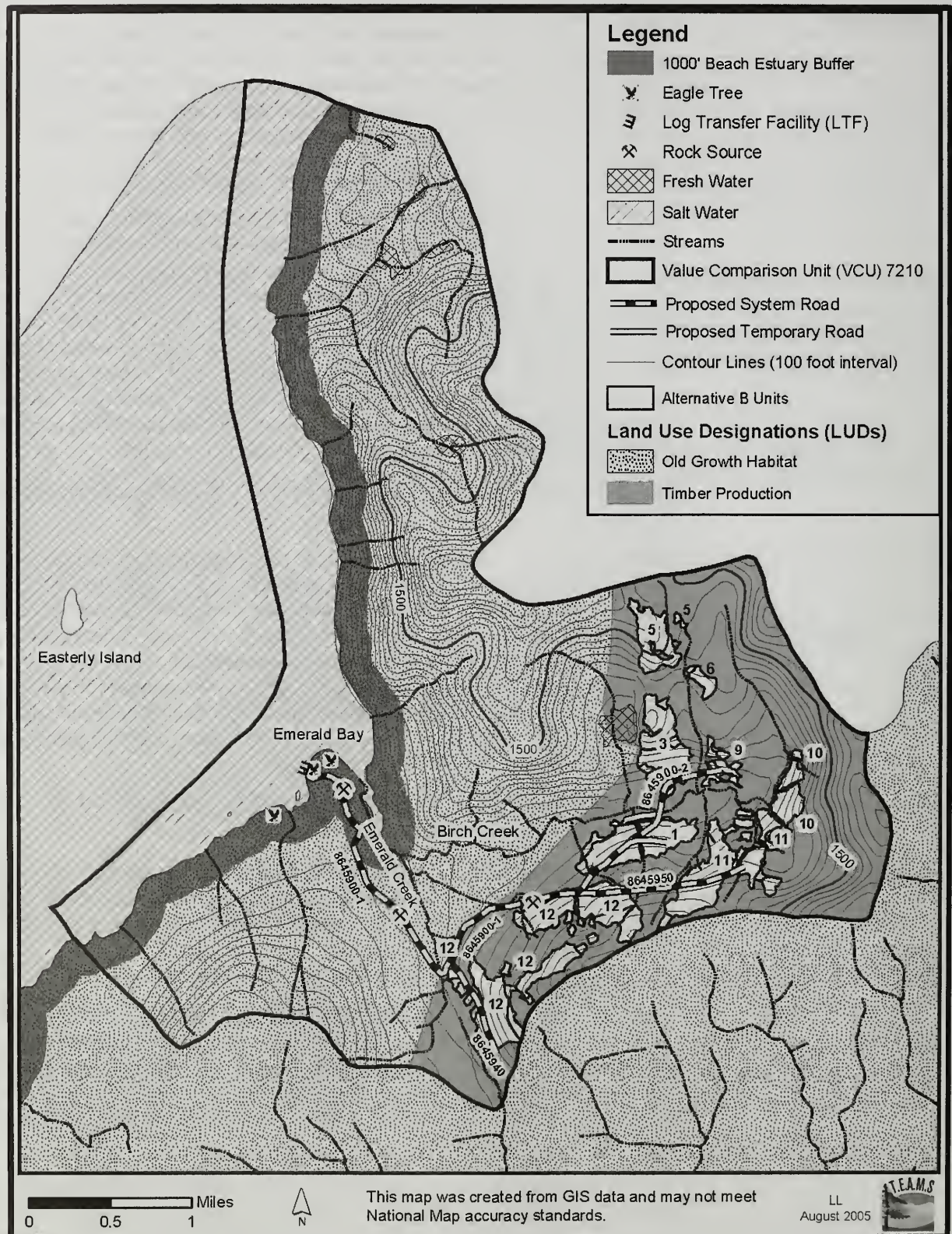
Old-growth Reserves

There would be no activities in the medium OGR under Alternative A and no change to its old-growth characteristics would occur. A floating camp is more probable under Alternative C since no roads are constructed under this alternative. Logs would be flown directly to the barge and helicopter refueling could occur outside the OGR. Impacts to the OGR would be minimal. Alternatives B and D would most likely utilize a land camp in the OGR which could be up to 2 acres in size.

Alternatives B and D would fragment the medium OGR and reduce the old-growth block size. They would construct a road, two 1-acre rock pits, and a land-to-barge LTF within the OGR (Figure 3-2). Roads are allowed in these areas only when there are no other feasible alternatives. No other feasible routes were located during field reconnaissance.

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Figure 3-2
Location of Proposed Road and Units through Old-growth Habitat LUD (Alt. B shown;
Alt. D is similar through the OGR)



Source: GIS, TEAMS, L.LaPorta 2005

Field review of the proposed road location in the 2003 and 2005 found that the road location crosses through more medium and high volstrata old growth and is located closer to the creek than mapped on the GIS layer. A portion of the road would be within the beach and estuary buffer and an eagle nest buffer; the LTF would be within the beach buffer and roughly 135 feet from an eagle nest. The first section of road is medium volstrata POG with moderately large spruce and hemlock and large cedar. It then goes through low volstrata POG with scattered large cedar. Unproductive scrub/muskeg areas are just south of the road location; a camp and sortyard could be located in this area. The third noticeable section includes high to medium volstrata spruce/hemlock forest with few cedars. After this, the road again goes through scrubby timber before it switches back to spruce/hemlock forest and muskeg. Several small muskegs were crossed along the way as well as small tributaries to Emerald Creek. Fourteen acres would be cleared in the OGR for the road right-of-way. Roads would be designed to standards that minimize impacts to resources. Since new road construction is generally inconsistent with Old-growth Habitat LUD management, road use is limited to logging traffic only. No public motorized use of the road would be allowed. Upon completion of the timber sale, the roads would be put into storage and closed to all motorized use. See the Transportation section for details on road location and design.

Habitat loss is greater than just the conversion of a small area of land to road surface. Roads fragment habitat by changing landscape structure, dissecting vegetation patches, increasing the edge-affected area, and decreasing interior area (Gucinski et al. 2001). The risk of genetic and species loss is higher if the structure, composition, or function of habitats are compromised. Examples of such compromise are the conversion of productive habitat into a rock surface and the fragmentation of large blocks of suitable habitat into smaller isolated blocks that separate small populations from each other. The road would bisect the medium OGR into a 3,907-acre section north of the road and 7,623 acre section south of the road. Although the overall size meets Forest Plan Appendix K criteria, neither block would meet the criteria by itself.

Roads can also create a barrier to wildlife movement. Effects on small mammals, amphibians, and invertebrates have been documented for a variety of habitat conditions; even narrow, less-traveled gravel roads can restrict movement (Forman 1995, Meffe et al. 1997, Forman and Alexander 1998, Seiler 2001). Therefore, the road through the OGR could affect movement patterns of smaller, less-mobile species. The head of Cleveland Peninsula and all major river drainages were identified as a major linkage for movement and dispersal of terrestrial mammals (MacDonald and Cook 1999). Although the road may create a barrier through the OGR, movement corridors would be maintain through the small OGR in VCU 7220 on the east side of the project area and within riparian buffers. The riparian buffer would provide a link from Emerald Creek into the Wasta drainage and provide a travel corridor around the road.

In addition to the structural impacts of road clearing, the road would create an abrupt, artificial edge. Interior old growth has different characteristics than the old-growth forest at the edge, due to light interception by surrounding trees, buffering from the effects of wind, and the general absence of transitional plant species (Concannon 1995). Concannon found that microclimatic edge influences are detectable 200 meters (656 feet) from clearcut edges in Southeast Alaska, but only extended 120 meters (394 feet) from muskegs due to the feathering effect of scrub timber. Concannon did not address the effects of roads; however, many of the same effects would be created. Therefore, for this analysis, 656 feet was used to estimate loss of habitat from introduced edge for road segments through forested habitat. Introduced edge would affect 180 acres of forested habitat within the OGR in the short term. Of this, approximately 90 acres would also occur within the beach/estuary buffer. Since scrub/muskeg areas are already open, it was assumed the road would not create any additional edge within this habitat.

Edge can have either a positive or negative effect on species. Kissling (2003) found that densities of red-breasted sapsuckers, hermit thrush, and Pacific-slope flycatchers were negatively affected by edge in Southeast Alaska whereas ruby-crowned kinglet densities were

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positively affected. Kissling suspected that ruby-crowned kinglets were an edge-exploiting species in Southeast Alaska given their affinity for 25-35 year old young-growth stands. Studies in the western US and Canada have consistently found that brown creepers are negatively affected by edge (Hagar 1999, Hobson & Bayne 2000, Brand & George 2001, George & Brand 2002). Species that are habitat generalists or prefer more open habitat benefit from created edge. For example, red squirrel juveniles had higher survival rates in edge habitat than interior forest in the Yukon. They spent less time traveling and foraging than interior squirrels and were thereby less exposed to predation. An interesting fact was that although use abutted the edge, the squirrels did not incorporate seldom-used gravel roads into their territories (Anderson and Boutin 2002). Alder and conifers are expected to overtake the road within 20 to 30 years of road closure. At that point, it is estimated that edge effect on forested areas would begin to decline. Road effect on management indicator species is discussed further in the Wildlife section.

Due to economic constraints of off-loading logs in the Timber Production LUD to be sorted and then reloading the logs onto trucks to haul to the LTF, a sortyard would be located within the OGR under Alternatives B and D. The sortyard requires approximately 4 acres. Opportunity exists to locate both the sortyard and a land camp outside of the beach/estuary buffer.

The LTF proposed in Alternatives B and D would remove less than 1 acre of old growth within the OGR. Edge effect would extend further into the old growth but Concannon found that effects to beachfronts ranged from 30 to 120 meters (98 to 394 feet). The LTF would be decommissioned when harvest operations are complete. The bulkhead would be removed and the rock fill would be spread on the site. The area would eventually become reforested with trees and shrubs.

Ground disturbance within the medium OGR would be 23 acres; edge effect would be at least 200 acres. The medium OGR would still meet the overall size and POG requirements of the Forest Plan Appendix K, but quality would be reduced for less mobile species. This would not affect species composition and distribution across the Forest. Effects would be localized and relatively short-term.

Productive Old Growth and Connectivity

Maintaining old growth outside of OGRs is also an important component of the conservation strategy. Alternative A would maintain all old growth in the Timber Production LUD in its currently undeveloped state. Existing connectivity would be maintained.

The action alternatives would increase the amount of fragmentation in the matrix by harvesting old-growth habitat, constructing roads, and decreasing patch size. The amount of productive old growth within the Timber Production LUD would be reduced 44 to 46 percent. The level of connectivity would be reduced until regenerating stands develop the structural components of old growth. Clearcuts in Alternative B would have the greatest impact. Partial cuts would maintain some structural components such as snags, some overhead cover, and downed logs. Understory vegetation would exist in areas that survived the felling and yarding of larger trees (see Silviculture section). These components would provide micro-habitat patches and connectivity for species that utilize more open habitat. Most of the remaining POG within the matrix is located on the steeper slopes on the eastern edge of the Timber Production LUD. Old-growth habitat is maintained within riparian buffers and on these steeper slopes. Table Old Growth-3 displays the acres of old growth remaining in the project area after harvest.

Table Old Growth-3
Percent POG Remaining in VCU 7210 by Alternative

	OGR ¹	Acres of POG remaining in matrix (Timber Production LUD)					Total POG remaining	
		Alt. A ²	Alt. B	Percent retained	Alts. C&D	Percent retained	Alt. B	Alts. C&D
POG	3,897	1,361	760	56%	741	54%	89%	88%
High volstrata POG	1,860	487	232	48%	222	46%	89%	89%
Medium volstrata POG	883	725	508	70%	489	67%	87%	85%
Low volstrata POG	1,154	148	20	14%	29	20%	90%	91%
Unproductive old growth	1,208	1,196	1,196	100%	1,196	100%	100%	100%

¹ Does not include road right-of-way harvest.

² Existing Condition/No-action Alternative

Source: Forest Service GIS

Effects of Roads Outside the OGR

Alternatives A and C do not propose road building or rock pits in the matrix. Alternative B would construct 4.0 miles of road and one rock pit outside of the OGR. Alternative D would construct 1.6 miles of road and one rock pit outside the OGR. Most road construction is within proposed harvest units; there would be minimal additional impact on old-growth habitat.

Coarse Canopy

Volume class 6 and 7 stands are the current best available portrayal of coarse canopy (Cole letter 2005). No harvest would occur in the 597 acres of mapped coarse canopy habitat. Additional coarse canopy stands were located within in proposed units during unit reconnaissance; more are expected to be located within the project area. Coarse canopy stands within the proposed units would be harvested.

Cumulative Effects on Productive Old-growth Habitats

Cumulative effects analysis was completed for WAA 1817. An analysis of cumulative effects includes "reasonably foreseeable future actions" (40 CFR 1508.7). No other timber sales are anticipated in WAA 1817 within the foreseeable future. Union Bay mining exploration in the vicinity of Mt. Burnett is the only other ground-disturbing activity occurring within the WAA. Exploration is mainly in alpine areas; effects to POG are negligible. No other activities are proposed. Table Old Growth-4 displays the percent of POG remaining in the WAA after implementation of the alternatives.

Table Old Growth-4
WAA 1817 Productive Old Growth After Harvest

Alternative	Acres POG remaining	Acres of harvest POG	Percent of POG remaining in WAA 1817
A	35,336	0	100%
B	34,817	601	99%
C	34,803	620	98%
D	34,803	620	98%

Source: FS GIS Volstrata

Mitigation

No public motorized use of the road would be allowed. Upon completion of the timber sale, the roads would be put into storage.

Monitoring

Refer to the Transportation and Access section of Chapter 3 for road closure monitoring.

Fisheries Resources

The following descriptions and analysis are summarized from the Emerald Bay planning record documents: Fish and Water Resource Report (1999) updated in 2003, and Soils and Water report for the Emerald Bay project area (1999). A related analysis of fisheries is contained in the Forest Plan, Chapter 3. Applicable fisheries and riparian direction is contained in the Forest Plan, Chapter 4 and Appendices D and J. Further discussion on riparian resources can be found in the Water and Wetland section of Chapter 3.

Affected Environment

Fish Species and Uses

Project area streams contain important anadromous and resident fish habitats. The streams support three species of anadromous salmon (pink, chum, and coho), as well as resident coastal cutthroat trout and Dolly Varden char. King salmon are present in the inlets and bays of the project area, but do not spawn in project area streams. Salmon, trout, and char are important components of the subsistence, sport and commercial fisheries of Southeast Alaska and are a major food source for many wildlife species when present. Emerald Bay is not a high subsistence use area. Alaska Department of Fish and Game does not issue personal use permits for the fresh waters of the project area. Emerald Creek mainly contributes to the commercial fisheries of Southeast Alaska.

Fish Habitat

Fish habitat is described by watershed, stream class, and process group (stream channel typing). Watersheds are areas that collect and discharge runoff through a given point on a stream. The Emerald Bay project area includes a portion of the 28 square mile Wasta watershed (C72C) and all of the 6 square mile Emerald Bay watershed (C70A). A minor portion of the proposed timber sale would occur in the Wasta sub-basin (see Figure 3-3). The Wasta sub-basin is relatively flat and has low sediment transport capability.

Over 75 percent of the project area is located in the Emerald Bay watershed. Emerald Creek runs southeast to northwest with small tributaries flowing in at right angles. Birch Creek, the largest tributary to Emerald Creek, flows southwest from high elevation to its confluence with Emerald Creek. The Emerald Bay watershed was divided into four sub-basins for sediment risk analysis (see Fish and Water Resource Report). These four sub-basins are shown in Figure 3-4. The most sensitive resident salmonid habitat in the watershed is located in sub-basin S01 (upper Birch Creek) where four Class III tributaries join an unstable palustrine complex at the upper mainstem floodplain. Tributaries have deposited extensive alluvial fans where they join the main channel. Because of the high relief and concentration of transport channels, geomorphic risk to aquatic habitat resulting from timber harvest is high in this sub-basin. Approximately 18 percent of the harvest would occur within sub-basin S01.

Risk to the other three sub-basins is low. Approximately 65 percent of the harvest would occur in sub-basin C01. Channels within this sub-basin are more resilient to disturbance, but are also more likely to transport bedload than they are to entrain it. The northwest half of this sub-basin is within the OGR. Roughly 17 percent of the harvest would occur in sub-basin S02. The main channel is less than 5 feet wide and lacks sufficient energy to transport material downstream. In addition, most of this sub-basin is within the OGR. Sub-basin C02 is located below the confluence of Emerald Creek and Birch Creek. It is totally within the OGR and no disturbance would occur other than road construction and related activities. Effects to the Emerald Bay watershed are discussed below.

There are approximately 21 acres of lake habitat in the Emerald Bay project area. The 18-acre lake in the C01 sub-basin occurs at 950-foot elevation and does not contain fish. A small pond (less than 3 acres) occurs in the Wasta sub-basin.

Fish habitat was analyzed at the watershed scale using estimates of fish habitat availability (miles of fish-bearing streams in a watershed) and capability (ability by a watershed to produce smolts). Estimates were compared against data collected for similar-sized watersheds across the Cleveland Peninsula (at least third-order and greater than 1 square mile). Emerald Bay fish habitat availability estimates were slightly above average when compared to these other watersheds. Potential capability to produce smolts was slightly above average for salmon, and slightly below average for Dolly Varden. The fish habitat is slightly above average when compared against similar watersheds across the Cleveland Peninsula landscape. On the Cleveland Peninsula, the Wasta watershed produced the greatest number of smolts (475,000) in the 4th quartile; Emerald Bay watershed (67,000 smolts) was the second highest in the 3rd quartile.

There are 15.3 miles of streams in the project area, with 14.7 miles of streams in the Emerald Bay watershed. Streams are shown by stream class in Table Fisheries-1 and on the unit cards.

Table Fisheries-1
Number of Stream Miles by Stream Class

Watershed	Class I	Class II	Class III	Class IV¹	Total
Emerald	2.5	3.5	4.6	4.1	14.7
Wasta	0.0	0.6	0.0	0.0	0.6

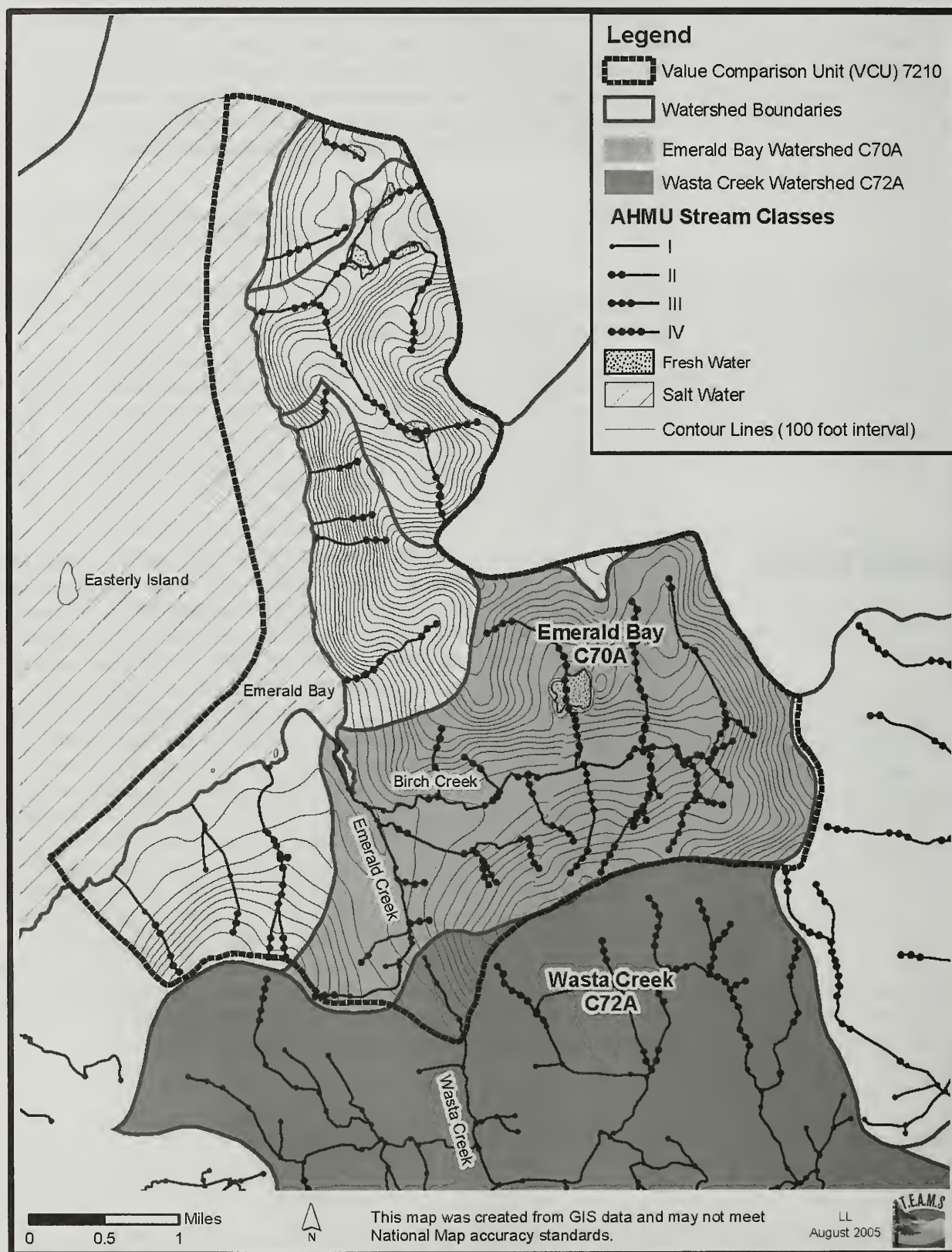
¹As identified during field recon; more Class IV streams could occur
Source: Forest Service GIS

Existing Harvest

Timber harvest and roads are typically the forest management activities with the highest potential to adversely affect fisheries habitats. The Emerald Bay project area has had 14 acres of selective timber harvest in the past. The harvest occurred approximately 60 to 80 years ago at the mouth of Emerald Creek (harvest age was determined by increment boring). Primarily Sitka spruce was removed from the floodplain (FP4 channel type) just above the estuary. Harvest did not extend past the confluence of Emerald and Birch Creeks. The majority of the western hemlock was left standing. During a reconnaissance in April 1998, large woody debris and pools were present in the channel, with several wood pieces spanning the creek and checking substrate. Along the streams where harvest occurred, numerous large (diameter equal to or greater than 20 inches breast height (DBH)) trees are growing along the stream. Many of the trees are hemlocks that are hundreds of years old that were left standing when the riparian area was selectively harvested. In addition to the hemlock and relatively large alder (14 inch DBH), Sitka spruce trees, which have regenerated naturally, are expressing dominance. Many of these spruce are in excess of 15 inches DBH as well. To the untrained eye, the riparian corridor appears to be multi-aged old growth. Opportunities to enhance this stream reach were investigated and determined to be unnecessary due to the abundant supply of large living trees along the stream bank available for natural recruitment. There are also several down trees within the stream that are creating quality fish spawning and rearing habitat. The floodplain along the harvested section of Emerald Creek was determined to exist within the natural range of conditions found along streams that have not been harvested.

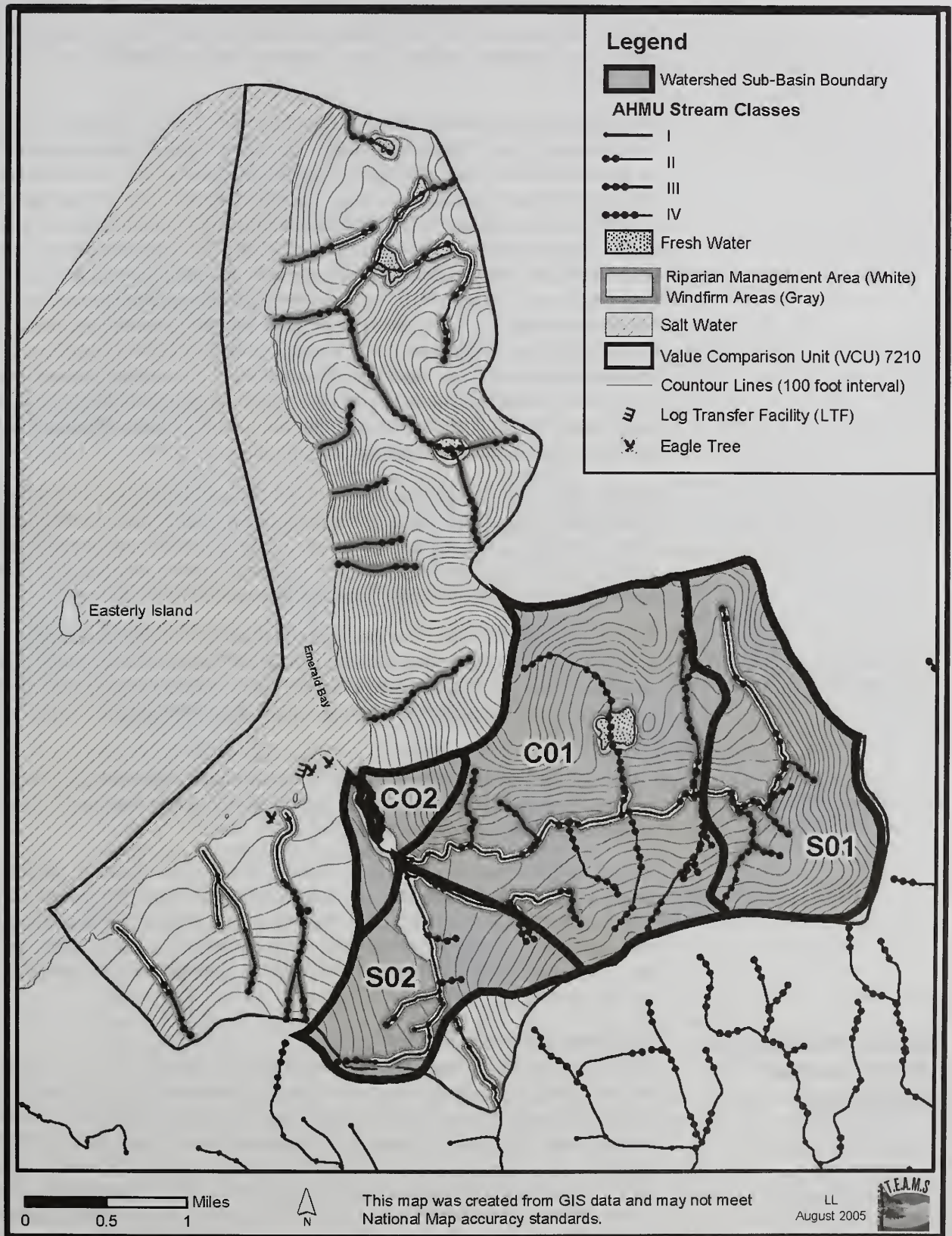
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Figure 3-3
Watersheds



Source: GIS, TEAMS, L.LaPorta 2005

Figure 3-4
Watershed Sub-Basins and Riparian Management Area Buffers



Source: GIS, TEAMS, L.LaPorta 2005

Environmental Consequences

National Forest Management Act regulations prohibit any activities near streams that would seriously and adversely affect fish habitat (36 CFR 219.27 (e)). In addition, the Tongass Timber Reform Act of 1990 requires a no-harvest buffer zone of at least 100 feet on each side of all Class I streams, and all Class II streams that flow directly into Class I streams (Section 103 (a)).

The Forest Plan Riparian Standards and Guidelines (Forest Plan page 4-55) incorporate this direction and provide additional protections. The Riparian Standards and Guidelines require no-harvest buffers along all Class I, II and III streams, based on stream process groups and a defined Riparian Management Area. They provide direction for management beyond the no-harvest zone to provide for a reasonable assurance of windfirmness. Riparian Standards and Guidelines were specifically developed through a collaborative effort involving lead watershed and fisheries scientists from Federal (management and research) and State (Alaska Dept. of Fish and Game; Alaska Dept. of Environmental Conservation) agencies. They are the measures established to avoid any additional impacts to aquatic resources from management activities and can only be modified through an approved, site-specific watershed analysis. The standards and guidelines and other direction of the Forest Plan meet or exceed all of the recommendations by Anadromous Fish Habitat Assessment (AFHA) and include additional protections. These standards and guidelines were designed to protect fish habitat and provide for sport and commercial fisheries and subsistence.

Finally, the Best Management Practices (BMPs), designed to ensure compliance with the Clean Water Act, help protect riparian habitat on Class IV streams not protected by buffer zones. In order to minimize the potential for adverse impacts on soil and water resources by management activities, BMPs are used to directly or indirectly protect water quality from non-point source pollution. This is typically done through site-specific prescriptions.

Timber harvest activities have the potential to affect fisheries resources by altering fish habitat. Logging and associated road building can affect fisheries resources by changing the delivery of water, sediment, and input of large woody debris into the stream system. Changes of the input and transport of these components can adversely affect the capability of the stream habitat to produce fish.

Results of the Fish and Water Resource Report mentioned previously were used in the design of harvest units and the inclusion of additional mitigation measures. Areas where high risk was identified or indicated were avoided.

Project design serves to substantially minimize potential effects to the project area fisheries resource. Measurable direct or cumulative effects to fisheries resources are not anticipated due to the implementation of the Forest Plan Standards and Guidelines. The following discussions address the potential risk that unforeseen effects may still occur. It should be emphasized that this is only an indication of relative risk, not an estimate or expectation of adverse effects actually occurring.

Direct and Indirect Effects of the Alternatives

Roads and Stream Crossings

Road construction and use often poses the greatest potential risk to riparian resources and fish habitat capabilities. Roads can affect fish habitat through the introduction of fine sediment, increased landslide potential and re-routing of sediment-laden water. Road construction also has the potential to affect upstream fish passage through improper placement or sizing of culverts. No road construction is proposed under Alternatives A or C. Therefore, habitat effects associated with roads would not occur under these alternatives. Proposed road construction under Alternatives B and D requires crossing streams to access timber harvest units (see Table Fisheries-2). Specifics of each crossing are listed on the road cards.

Table Fisheries-2
Stream Crossings by Alternative

Number of Crossings	Alt A	Alt B	Alt C	Alt D
Class I	0	1	0	1
Class II	0	2	0	2
Class III	0	3	0	0
Class IV	0	6	0	3
Total	0	12	0	6

Source: Forest Service GIS

The road through the OGR in Alternatives B and D has been routed so as to minimize adverse impacts to fish habitat and number of crossings needed. The road would be designed to reduce the footprint on the land. Alternative B has the greatest total amount of proposed road at 6.2 miles. Alternative D proposes 3.8 miles of road. A minor amount of sediment may be introduced into watercourses from road building, stream crossings, and road traffic. Alternative D would require six fewer stream crossings than Alternative B. Risk to fisheries resources in Alternative D is less than Alternative B because no crossings are required at Birch Creek or in the large Class III streams in the upper flood plain. All Class I, II, or III crossings would be log-stringer bridges. Culverts would only be used on small Class IV cross drains. In-stream construction is restricted on Class I streams between from June 15 to August 7 to protect critical freshwater life phases of anadromous salmon. Timing restrictions coincide with the occurrence of spawning adult salmon, salmon eggs, or larval salmon in the gravel and apply to all in-stream construction activities. Timing restrictions may be waived on a case-by-case basis if all disturbance is kept above the high water line and sediment controlled.

All log-stringer bridges and culverts would be removed at the end of the sale.

Timber Harvest

Riparian Standards and Guidelines were specifically developed to prevent any additional impacts to aquatic resources from management. Therefore, no adverse impacts to the fisheries resource are anticipated under any alternative.

Removal of riparian vegetation through timber harvest can affect fish habitat and fish populations by increasing sediment inputs into streams, changing stream temperature and dissolved oxygen levels, changing the input of large woody debris, and altering the delivery of water to streams. The closer the timber harvest activities are to a stream, the higher the risk of adversely affecting fish habitat.

Alternative A does not propose timber harvest and would have no effect on fisheries habitat. Of the three action alternatives, Alternative B is likely to have the most risk to fish habitat as a result of timber harvest. Alternatives C and D pose nearly the same risk to fish habitat from timber harvest. The risk from Alternative D is slightly higher due to the effects of the road right-of-way harvest. Part of Unit 12, Unit 13, and a portion of road 8645940 fall within a sub-basin of the Wasta watershed. The Wasta sub-basin is relatively flat and has low sediment transport capability. Therefore, sediment risk within this sub-basin is negligible and would not have an adverse impact on fisheries. The majority of the harvest occurs within Emerald Bay watershed. Most harvest is in the Birch Creek sub-basin (C01); remaining harvest is in the adjacent S01 sub-basin. Birch Creek S01 has the highest sediment risk due to high-gradient streams in the headwaters. While some sediment may settle in the beaver ponds at the lower end of this sub-basin, active channels could flush sediment downstream into sub-basin C01, which also has transport capability and sits directly above the major salmon-spawning habitat.

In order to reduce potential effects, no-harvest buffers were included along all Class I, II and III streams. There is the possibility of loss of trees within riparian areas due to future windthrow;

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however, additional width was included where necessary to provide windfirm boundaries. The buffers are described on the unit cards.

Timber harvest may remove riparian vegetation to the streambank along Class IV streams included in harvest units (see Table Fisheries-3). These are all non-fish streams and water flows are often intermittent or ephemeral. While these streams have insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality and fish habitat, they inevitably do introduce some sediment. BMPs are applied to these streams, and they may also receive additional protection in the form of full suspension over the stream, directional felling, or split yarding, based on the physical characteristics of the stream and the need to protect streambank integrity.

Table Fisheries-3
Miles of Unbuffered Class IV Streams within Harvest Units

Alternatives	A	B	C	D
Unbuffered Class IV	0	2.9	3.3	3.3
% of total Class IV (4.1 miles)	0	71%	81%	81%

Note: Differences between numbers displayed here and those displayed in the Draft EIS are due to additional field data collected subsequent to Draft EIS preparation.

Source: Forest Service GIS

Cumulative Effects

The area analyzed for cumulative effects is the same as the direct effects area. Topographic features isolate the effects area from any outside activity. Sediment transport within the Wasta sub-basin is negligible and would have no measurable effect on other portions of the Wasta watershed. Stream condition within the historical harvest area was determined to be within the range of natural streams. There are no other foreseeable actions within the analysis area. Use of the protection measures listed above serves to substantially minimize potential effects to the project area fisheries resource. Therefore, cumulative effects to the fisheries resource are expected to be negligible.

Mitigation

All Class I, II, or III crossings would be log-stringer bridges to provide fish passage. In-stream construction is restricted on Class I streams between from June 15 to August 7 to protect critical freshwater life phases of anadromous salmon. Timing restrictions coincide with the occurrence of spawning adult salmon, salmon eggs, or larval salmon in the gravel and apply to all in-stream construction activities. Timing restrictions may be waived on a case-by-case basis if all disturbance is kept above the high water line and sediment controlled.

In areas where extensive windthrow has occurred in the past or is susceptible to occur in the future, riparian areas would be protected by windfirm buffers. Part of the windfirm buffer in Unit 1 would be harvested with the single-tree selection prescription. To insure the function of the buffer addition leave trees would be left standing to assure resistance to windthrow.

Monitoring

A Management Indicator Species (MIS) monitoring site for resident salmonids was located and delineated on the ground in the Birch Creek sub-basin. Monitoring of this site began in July 2001 and would continue after timber harvest is complete.

If additional streams were found during project layout, the same standards and guidelines would be applied. Future monitoring would focus on the application and adequacy of buffer prescriptions.

Essential Fish Habitat

Introduction

Essential Fish Habitat (EFH) is the water and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. The marine EFH in Alaska includes estuarine and marine areas from tidally submerged habitat to the 200-mile exclusive economic zone (EEZ). The freshwater EFH includes streams, rivers, lakes, ponds, wetlands and other bodies of water currently and historically accessible to salmon. EFH for Pacific salmon recognizes six critical life history stages: (1) spawning and incubation of eggs, (2) juvenile rearing, (3) winter and summer rearing during freshwater residency, (4) juvenile migration between freshwater and estuarine rearing habitats, (5) marine residency of immature and maturing adults, and (6) adult spawning migration. Habitat requirements within these periods can differ significantly and any modification of the habitat within these periods can adversely affect EFH.

Assessment

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act states that all Federal agencies must consult the National Marine Fisheries Service (NMFS) for actions or proposed actions that may adversely affect Essential Fish Habitat. The Act promotes the protection of EFH through review, assessment, and mitigation of activities that may adversely affect these habitats. On August 25, 2000 the Forest Service, Alaska Region, and NMFS came to an agreement of what this consultation entails. The Emerald Bay Draft EIS was completed and distributed on January 10, 2000 before the agreement was signed between the two agencies. Due to the date of the agreement, EFH consultation was not initiated during the Draft EIS phase for the Emerald Bay Timber Sale. To comply with the EFH agreement, the Forest Service contacted NMFS on October 17, 2003 to explain the situation regarding the Emerald Bay Timber Sale appeal process. It was agreed that the formal consultation process would start when the Forest Service sent a copy of the revised EFH assessment.

The Essential Fish Habitat within the project area is primarily fresh water. Of the 15.3 miles of stream in the project area, 2.5 miles are Class I streams that contain populations of coho, chum, and pink salmon. Timber harvest near Class I streams and wetlands may have an adverse effect on Essential Fish Habitat in the streams and lakes. These potential impacts include increased peak flows, increased sediment delivery and potential blockage of upstream movement of fish at road crossings. However, by following the standards and guidelines in the Forest Plan, the effects on freshwater EFH would be minimized for the following reasons.

- All Class I streams within the project area would be protected by a no-harvest buffer of 100 feet or more in accordance with the Forest Plan and the Tongass Timber Reform Act (TTRA).
- In areas where extensive windthrow has occurred in the past or is susceptible to occur in the future, buffer widths would be increased, and additional trees would be left standing to assure resistance to windthrow.
- All Class II and Class III streams would be protected by no-cut buffers. Class II streams would receive a no-cut buffer of 100 feet or more and Class III streams would receive a no-cut buffer to the slope break in accordance with the Forest Plan and the Tongass Timber Reform Act (TTRA). This minimizes the potential impact to downstream Essential Fish Habitat by reducing the likelihood of sediment introduction and maintaining future sources of large woody debris.
- Best Management Practices (BMPs) would be implemented to protect water quality and aquatic habitat protection for all freshwater streams within the project area.
- All Class I, II, and III stream crossings associated with the proposed roads would have log-stringer structures to provide fish passage.

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There are also potential effects on marine habitat from the proposed Emerald Bay log transfer facility. Dive surveys were completed by the U.S. Fish and Wildlife Service on June 8, 2000. Divers followed a 100-meter transect at the proposed LTF location and documented both physical and biological characteristics of the site. The California sea cucumber (*Parastichopus californicus*) and hermit crab (*Pagurus spp*), both non-managed groundfish species, were the dominant animal species throughout the 100-meter transect. The spiny scallop (*Chlamys hastata*) and rock sole (*Pleuronectes bilineatus*), both managed species, were present along the transect near the 80-meter mark. It was noted by the divers that the area in front of the proposed LTF is characterized as having a high species diversity of the typical plant and animal species for Southeast Alaska. Bark debris has been shown to smother natural substrates and likely reduce prey organisms for rock sole and other bottom fish. Alternatives B and D for the Emerald Bay Timber Sale would utilize a barge loading facility that would minimize effects to the marine environment around the proposed LTF. Under Alternative C, logs would be flown by helicopter directly to the barge; no LTF would be constructed. Under all action alternatives, loading logs onto a barge would prevent them from being placed into marine waters and reduce accumulations of bark debris on the substrate in front of the LTF.

Conclusions

The Forest Service determined that Emerald Bay Timber Sale may adversely affect Essential Fish Habitat. However, by implementing Forest Plan Standards and Guidelines and Best Management Practices, effects to Essential Fish Habitat would be minimized. Additional impacts to EFH are likely to occur only from unforeseen events.

Copies of the revised EFH assessment and Emerald Bay Draft SEIS were sent to NMFS as stated in the agreement. Concurrence on the EFH finding was received from NMFS on December 18, 2003. This concurrence was re-affirmed in their comment letter on the Draft EIS (Appendix D). Formal Essential Fish Habitat consultation has been completed in accordance with the agreement between the Forest Service and National Marine Fisheries Service.

Mitigation

No project-specific mitigation is identified.

Monitoring

No post-harvest monitoring is identified.

Heritage Resources

The Emerald Bay project area is located on the northwest portion of Cleveland Peninsula. The archeological surveys conducted for the Emerald Bay Timber Sale EIS, in conjunction with the surveys for the Yes Bay/Mink Bay Land Exchange, the Smugglers Cove Recreation Shelter and Trail, and the Cleveland Peninsula EIS surveys have added significantly to our understanding of the chronology of human occupation and patterns of traditional use on the Cleveland Peninsula.

Affected Environment

The Cleveland Peninsula occupies an important place in the traditions of the Tlingit people. Port Stewart, which was called Ganax or "safe, sheltered bay" (Emmons, 1916) is considered important to the Ganxadi and Ganaxtedi clans who derived their names from this area. Consultation regarding potential cultural sites and the results of archeological surveys was accomplished with the Wrangell Cooperative Association. According to Goldschmidt and Haas (1946) who conducted interviews with Native people in an effort to determine traditional land-use patterns, it was determined that the Emerald Bay area was within the territory of the Kiks'adi people of the Stikine area and was likely utilized for seasonal hunting and gathering activities.

During the pre-field work literature search and analysis, a single notation indicating cultural use of Emerald Bay was located in T.T. Waterman's 1926 report "Tlingit Geographical Names for Extreme Southeast Alaska." Waterman listed in his field notes a portage trail from Spacious Bay on the east coast of Cleveland Peninsula to Emerald Bay. This report also suggests that a portage route was used from Yes Bay to Santa Anna Inlet. Kiks'adi oral traditions may indicate that at least one early migration of the clan utilized a route crossing between Spacious Bay and Vixen Inlet (Feller, J. pers. comm.).

Field investigations were concentrated along the coastline and estuaries. An aerial reconnaissance of the interior areas between Spacious Bay and Emerald Bay indicates that there are a number of game trails which intersect and meander across the breadth of the peninsula (no project activities are proposed for the interior wetland areas). The topography from Emerald Bay to Spacious Bay gains up to 300 feet of elevation and is vegetated with dense berry bushes and a predominant overstory of hemlock along the drainages and higher elevations. The elevation and open muskeg environments are more consistent from Spacious Bay along the Wasta Lake and Creek drainage system to the vicinity of Vixen Point and Inlet. The assumption from these inspections is that a portage trail would be ephemeral and virtually indistinguishable from the many game trails currently present. A portage trail could have been followed to the Vixen Inlet vicinity as well as to Emerald Bay.

Archaeological surveys in Spacious Bay during 1996 and the Emerald Bay survey in 1998 failed to locate any camps or a specific trail that could be associated with a portage route. No indications of long-term use were identified despite intensive survey of the estuaries and the coastal areas with good shellfish concentrations, beaches to land boats, fresh water, and well-drained localities. One historic site, CRG-480, was identified and documented by the Emerald Bay survey. Additionally, the survey did identify 21 culturally modified trees (CMTs). The majority of these modifications were alcoves cut into the trees indicating fire-making activities associated with either recreational or subsistence activities. Four rectangular bark-stripped cedars are modifications that can be attributed to Native bark stripping activities. Thousands of hand-logged stumps were found throughout the area along the coast and estuary and for some distance inland from the coast, indicating extensive hand-logging activities on the Cleveland Peninsula during the 1900s. It is possible that these logging activities may have obliterated any

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cultural sites that existed in the locality. Consultation with the SHPO however, found none of these sites eligible for the National Register.

Environmental Consequences

In all alternatives, all harvest units and all proposed road construction above 200 feet elevation would fall in low-sensitivity areas for heritage resources (high elevations and steep slopes), as defined in the 2002 revised programmatic agreement (Agreement #02MU11101-076) between the Forest Service Alaska Region, Alaska State Historic Preservation Office, and the Advisory Council on Historic Preservation. The archaeological analysis from literature search and the subsequent field survey in areas having the highest probability (less than 200 feet elevation) for locating cultural resource sites has located no significant historic or prehistoric properties. It is expected that there would be no direct, indirect, or cumulative effects on any significant cultural resource sites from the activities planned here. The area considered for cumulative effects was the project area, VCU 7210.

The State Historic Preservation Officer has been consulted, in accordance with Section 106 of the NHPA and 36 CFR Part 800, and concurred that no National Register eligible sites would be affected by the proposed activities. No effects on known significant cultural resources are anticipated.

Mitigation

No project-specific mitigation is identified.

Monitoring

Post-construction monitoring of a sample of roads and units would be implemented to further evaluate the sensitivity model.

Marine Environment, Log Transfer Sites and Related Facilities

Affected Environment

Marine Environment

Southeast Alaska's coastline consists of approximately 30,000 miles of tidal shoreline, roughly 60 percent of the total Alaskan coast. Within this region, a great diversity of habitats comprises Southeast Alaska's complex estuary and tidal environments.

Log transfer facilities, storage facilities and floating camps are points of concentrated activity associated with marine transportation of logs that can affect the intertidal and subtidal marine environments. Deep bays or coastlines that offer some protection from high winds are preferred sites for log transfer facilities (LTFs), log storage areas, float camp settlements, and anchorages. These areas are preferred because the deeper water and stronger currents flush out bark and debris that may enter the water, and therefore have less impact on marine life.

The shallow marine waters and associated mud flats and estuaries found in the protected coves and bays of the Emerald Bay project area provide habitat for some important species such as hermit crab, sea cucumbers and juvenile salmon. They are part of a complex and dynamic ecosystem that also includes shrimp, flatfish, marine worms, echinoderms, sponges, sea anemones, shellfish, plankton, marine algae, and other organisms.

Log Transfer Facilities

The transportation of harvested timber on the project area requires that the logs be trucked or flown to the ocean, transferred to barges, and towed to a log processing facility. Local processing sites close to the project area are located in Thorne Bay, Ketchikan or Wrangell.

There are no existing LTFs that serve the Emerald Bay project area. Initial reconnaissance of potential LTF sites was done in 1982 for the Cleveland Peninsula. Additional reconnaissance was done in 1998 and 1999 to ensure that the potential sites met the Alaska Timber Task Force (ATTF) Siting Guidelines. An underwater survey of the marine habitat at the potential site was completed during the summer of 2000.

This analysis used the ATTF Siting Guidelines (Forest Plan Appendix G) and Section 404 of the Clean Water Act to help identify a suitable location for an LTF for the Emerald Bay project. The least biologically productive and sensitive area available which meets industry's physical and economic requirements is the preferred site. Personnel from the U.S. Forest Service (Rhodes, 2000) and U.S. Fish and Wildlife Service (USFWS, 2000) evaluated eight potential sites over a 2-mile length of coastline adjacent to the project area. A permit for the construction of an LTF would need to be obtained prior to any timber harvest activities. An application for a permit will be submitted to the Army Corps of Engineers after the release of Emerald Bay Record of Decision.

The Alaska Timber Task Force Siting Guidelines for LTFs attempt to mitigate the potential effects of bark dispersal and toxicity by: (1) locating LTFs in areas having the least productive intertidal and subtidal zones to avoid degradation of marine habitat, (2) avoiding sensitive habitats, (3) avoiding shallow water, and (4) providing that LTFs should be located along or adjacent to straits, channels, or deep bays where currents are strong enough to disperse sunken or floating wood debris. Currently, all active LTFs receive a yearly underwater diving and sampling transect as required by the EPA for bark monitoring purposes.

The Emerald Bay area is limited in the number of sites available for consideration due to the exposure to weather and outside waters in addition to physical upland features. Seven locations were too shallow, had offshore rocks and reefs, or had steep adjacent uplands that made them

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unsuitable for an LTF location. One site was found to be suitable and accessible as an LTF (see Figure 3-2). This site is located outside of the Emerald Bay estuary and would meet the physical requirements for an LTF location. The U.S. Fish and Wildlife Service investigated this site with underwater dive transects to document the underwater habitat and characteristics. This report concluded that this site is very abundant in typical species found in marine environments of Southeast Alaska. The effects analysis below has considered this information.

There are elements of this LTF site location that are controversial among agency professionals as to how well this site meets the ATTF siting guidelines. A number of concerns were brought up through meetings, comment letters and conversations. One concern is the construction of a road, LTF, sortyard and rockpits in the medium OGR and beach fringe. Effects to the OGR are discussed in the "Biodiversity" section of this chapter, and OGR options in Chapter 2. Another concern is the disturbance to nesting bald eagles; the LTF is within 330 feet of a nest tree. Effects to the bald eagle are discussed in the "Wildlife" section of this chapter. Another concern is the filling of tidelands to construct the LTF and the effects on the benthic environment. These effects are discussed below in this section.

Log Transfer Methods

Two log transfer methods were considered in this analysis: (1) land-to-barge type facility and (2) helicopter to barge facility. Neither of these types of transfer methods would place logs or store logs in saltwater.

Land-to-barge Log Transfer Method

The land-to-barge transfer method requires a deep-water bulkhead for the barge mooring and loading. Logs are loaded directly onto a floating barge by use of a mobile loader over a bulkhead ramp from a shore facility. This facility would need to be supported with a boat and float plane dock, equipment off-loading ramp. The maintenance and fueling of equipment are conducted on uplands of the shore facility or log sortyard.

Two publications describe some of the general effects of LTFs and log storage on the marine benthic habitat. They compare the effects of types of log transfer methods used in Southeast Alaska and their effects on marine habitat. Sedell and Duval (1985) summarize the information available on the effects log transport and storage have on marine resources and fisheries. Faris and Vaughn (1985) examined log transportation and log storage in Southeast Alaska. Detailed discussion of these can be found in the planning record.

Helicopter-to-barge Log Transfer Method

The helicopter transfer method transfers logs directly from the harvest areas on to a floating barge. The maintenance and fueling of equipment are conducted on the barge or from nearby towns. Shore facilities and a loading bulkhead would not be necessary for this type of log transfer method. Boat and float plane docks could be attached to the barge.

Timber operators are required to obtain a permit from the State of Alaska prior to any transport of logs using a helicopter-to-barge log transfer method. When the helicopter transports logs directly to a barge, a loader immediately sorts the logs by species by moving them to another barge (or two) anchored nearby. This process requires more barge space, although logs do not enter the water. Slash accumulated during the operation is bundled with chokers and flown back to the units on the helicopter's return trip. Very little slash accumulates as logs are bucked and limbed on the cutting units.

Helicopter-to-barge log transfer methods require locations protected from storms and rough seas where barges can be anchored off shore. Open waters (Ernest Sound) are only suitable during good weather, and protected bays are preferred. These bays need to be large enough to allow barges to maneuver, and meet minimum depth requirements. For State permits, the required minimum depth is 40 feet for helicopter-to-barge log transfer method, in order to protect subtidal marine life.

Logging Camps

Float Camps

The number and locations of float campsites would depend upon the number of logging and road construction contractors engaged in implementing the project during concurrent times. Additionally, camp configuration and type (such as barge or log floats) could influence the location. The operator would obtain required State and Federal permits for float camps.

Land Camps

The contractor/operator would be responsible for obtaining appropriate permits for camps. To avoid introducing bears to human garbage, solid waste disposal would not be allowed on National Forest System lands. There are adequate upland areas for land camps; the preferred siting is associated with the sortyard. At most, one camp area is anticipated. Several contractors may share this camp.

Environmental Consequences

Log Transfer Facilities

Land-to-barge LTFs

A land-to-barge log transfer method at this site would minimize some of the concerns of bark deposition noted in the 2000 USFWS report. The design of the land-to-barge log transfer facility has been completed for permit application (project file). Due to the single entry and lower volume of timber accessible to this LTF, the LTF would be removed after timber harvest activities have concluded.

Helicopter-to-barge LTFs

A helicopter-to-barge log transfer method is proposed for Alternative C. The exact locations of the barge would be determined by the contractor and the State during the State permitting process.

Direct and Indirect Effects of the Alternatives

Effects on Marine Benthic Habitat

A land-to-barge bulkhead type LTF would be built in Alternatives B and D. The land-to-barge method would consist of a 30-foot wide bulkhead built out 150 feet from the tree line into the intertidal zone or 135 feet from the mean high water line (MHWL). The rock bulkhead associated with the facility would be slightly wider at the seaward end to allow a loader to turn around. The bulkhead consists of a vertical log bulkhead on all three sides of the rock bulkhead. Rock would be backfilled behind the logs. The height of the end of the bulkhead at the lowest tides would be about 25 feet; this would limit the LTF's use at lower tides and would require the use of smaller barges.

The shore operating area would be cleared and leveled back from the high-water mark. The dimensions of this area would be about 150 feet long by 50-75 feet wide. The operating site slopes up from the shore at about 20 percent grade. Hence, the rock wall at the back of the operating area would range from 5 to 20 feet in height. Alternatives B and D propose a shore facility and log sortyard within the OGR. The sortyard would occupy approximately 4 acres. Alternatives B and D propose utilization of one land-to-barge transfer facility to transfer logs from trucks to floating barges.

This log transfer method directly affects the intertidal area through the construction of the bulkhead and equipment off-loading ramp. The estimated footprint for the constructed bulkhead structure is about 0.25 acres. This would result in a small loss of species habitat and the death of those species that currently live in that habitat area and that are unable to move out of the bulkhead and ramp fill area (barnacles, hermit crabs, worms, starfish, seaweed, kelp, etc). The bulkhead would be placed on largely a bedrock marine habitat (dive report). This loss of habitat would occur for about 5 years while the LTF is being used to support harvest activities. This bulkhead would be removed after this use and the site would gradually be reclaimed by those marine species that it originally displaced or killed. Dive monitoring of active LTFs is done yearly to document effects to the marine habitat as a result of the LTF use.

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There would also be a localized reduction of water quality in the immediate vicinity of the bulkhead and ramp during their construction and removal as fill materials are placed and removed from the intertidal zone. This is anticipated to be of very short duration, typically until fill and fill removal is cleansed by the saltwater. This may take a few tidal changes after the activity has stopped. This may cause temporary displacement of fish species but is not anticipated to affect other marine animal or plant species or discolor water in the estuary of Emerald Bay.

Barge LTFs have less effect on the marine environment due to bark accumulation than typical LTFs that place logs directly in the saltwater for rafting, storage, and towing; however, conclusive studies are not available for comparison. The effects vary with each site depending on current flow and site productivity. Bark and debris would accumulate only in a small area around the extreme seaward end of the facility and is expected to be incidental as logs are placed directly on the barge.

A land-to-barge transfer system typically reduces, but does not eliminate, the potential for bark to enter the marine environment. However, by placing the wood directly on the barge without logs ever entering the saltwater environment the potential is much less. There may be incidental pieces of bark in the saltwater but measurable accumulations of bark on the bottom are not anticipated. The timber sale contract would include provisions to make the operator responsible for not allowing bark to enter the water. Bark-leached chemicals are not anticipated as the sortyard location would be placed within a vegetative buffer on an upland site and no logs would be stored in the saltwater at this site. The cost of preparing the land-to-barge bulkhead would be approximately 80,000 dollars.

Alternative C proposes helicopter transport of logs from the harvest area directly to a barge. This method of log transfer would eliminate the adverse effects to species and habitat in the intertidal zone, since barges would be anchored in at least 40 feet of water outside of this zone. Intertidal habitat and individual species would not be lost using this log transfer method since there would be no fill material on this zone.

A helicopter-to-barge log transfer method is anticipated to have even less effect on the marine environment than land-to-barge LTFs. Helicopter-to-barge LTFs minimize adverse effects to the more highly productive intertidal and near-shore marine environments since permitting requires a minimum depth of 40 feet of water. The deeper water has less productive environments in terms of species richness and the deeper waters usually offer stronger currents to disseminate any bark deposition. Shore facilities are not necessary with this log transfer system.

The potential for bark entering the saltwater environment would be greater than using a log bulkhead type of log transfer system. Some minor amounts of branches may accompany logs as they are flown to a barge. There is the potential for their deposition in the saltwater while they are being flown to the barge and during the return slash back to harvest units. There is also the potential for bark debris to be blown off a barge from the helicopter's down-wash or during refueling and take-off operations. Accumulated debris on the barge would be flown back to the harvest units.

Effects on California Sea Cucumber

A particular concern was raised about possible effects to the California sea cucumber. Adverse effects are not anticipated under Alternative C, as the barges would be anchored off shore in deeper water and no fill would be placed into the saltwater. Additionally the barges would be affecting the bottom only in terms of their anchor locations that would be in deeper unproductive waters.

Adverse effects are expected to be minor under Alternatives B and D as a result of the bulkhead fill associated with the land-to-barge log transfer method. The bulkhead extends out from MHWL approximately 135 feet (about 41 meters). The dive report (USFWS, 2000) indicates that the first occurrence of California sea cucumbers was at about 40 meters out from MHWL.

The end of the bulkhead would end about the location of the first noted sea cucumbers. From this information, it is surmised that the inter-tidal footprint would not likely have a large affect on this species as noted from dive report data. The LTF site has not been documented as a known commercial sea cucumber collection point, so effects to commercial cucumber operations are not anticipated. Other bivalves were not noted until the bottom became softer at approximately 55 meters, which is well past the end of the bulkhead.

Effects on Juvenile Salmon

Juvenile pink and chum salmon that spend several months, immediately after out-migration, in protected bays and coves would be more likely to be affected by land-based log transfer activities. These small fish are highly mobile as they feed on marine invertebrates. Some of their preferred food items live on the bottom surface. In Alternatives B and D, the location of the land-to-barge LTF is over 300 feet from the intertidal channels of the Emerald Bay estuary (Forest Plan 4-4). Bark accumulation and the area under the embankment of a standard bulkhead eliminate a small portion of the habitat for juvenile salmon. Losses of habitat are anticipated to be minimal as a result of bark deposition through the use of a land-to-barge LTF. The loss of marine habitat on the sea floor would be small and of short duration. The amount of habitat occupied by the LTF bulkhead is about 0.25 acre. The LTF is anticipated to occupy this space from about 5 years. This habitat is anticipated to recover its beneficial use to juvenile salmon after the removal of the LTF.

There are no anticipated adverse effects to juvenile salmon under Alternative C since no LTF is being built from the shoreline. Additionally the barge is located offshore in waters at least 40 feet in depth. Logs being placed directly on the barge would not affect salmon habitat and any incidental bark loss would be over deeper waters which tend to be less productive and more capable of dispersing bark.

Effects of LTF on Commercial Fisheries

There is no formal documentation that LTF structures or activities associated with their use conflict with commercial fishing near the facility. If a facility were located in a small bay or cove, it is possible that there could be some difficulty maneuvering around moored barges to get to favorite fishing sites. No adverse consequences on commercial fishing, or subsistence use are anticipated as the result of the land-to-barge LTF location. The LTF bulkhead would extend out into the saltwater 135 feet from mean high water line in Alternatives B and D, but not far enough to be a hindrance to navigation or commercial fishing. This obstacle would be present about 5 years. There is no documented use of the specific LTF location for commercial crabbing, shrimping, abalone, or sea cucumber harvest.

In Alternative C, the helicopter-to-barge operations may prove to be more of a hindrance to commercial fishing than the land-to-barge LTF. The locations of barges place them in deeper waters that are more subject to fishing and navigation conflicts. Locations would not be so far into the shipping areas as to affect commercial barging or shipping such as the Alaska Marine Highway. There is the potential for fishing boats and helicopter-to-barge operations to be occurring at the same time and in close proximity creating safety concerns. Many of the commercial fisheries are closed during the normal logging operation season except for commercial salmon and halibut fishing. This particular area is not known for intensive commercial fishing.

Effects of Logging Camp on Marine Resources

Logging camps would be required to obtain and comply with permits from the State of Alaska, and the Forest Plan and Forest Service contract provisions. Camps associated with an LTF site can cause additional use of fisheries and marine sources. There is no data currently available on the amount of additional use occurring at various camp locations on the Forest. The competition for resources at or near logging camp locations would likely increase, but only for the duration of the camp (5 years). The Board of Fisheries and Game for the Alaska Department of Fish and Game (ADF&G) can control the amount of harvest by setting bag limits, shortening season lengths, or by instituting a complete closure of a fishery. If resource

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problems arise because of increased resource pressure due to a logging camp, the Forest Service would aid the ADF&G in attempting to resolve the problem. However, with a project of this size and duration, it is unlikely that utilization would progress far enough to cause adverse consequences on the fisheries or marine resources.

Of the three action alternatives, B and D are likely to have the most risk to fisheries habitat and marine resources as a result of LTF construction and camps. All three action alternatives present a slight possibility of increased recreational fishing by logging camp residents. Offsite or inland locations for the camp would further reduce the impact.

Wildlife

Alternatives B and D propose LTF and road construction within an eagle nest protection buffer area. A variance has been requested from the U.S. Fish and Wildlife Service. The road alignment also crosses a portion of the Emerald Bay estuary buffer.

In Alternatives B and D, there are two types of effects associated with a land-to-barge LTF, shore facility, land-based camp and sortyard. First, there is the loss of habitat due to clearing for the LTF, road, camp, rock pits and sortyard. The amount of habitat lost is relatively minor, approximately 23 acres. The second type of effect is disturbance as a result of increased human activity associated with the LTF, access road, camp and sortyard. The species likely to be most affected by these activities are the bald eagle and brown bear. The Wildlife section in this chapter provides additional information about effects on these species.

The sortyard area would be outside the 330-foot bald eagle nest management zone, but a portion of the road and the LTF itself would be within the bald eagle nest buffer and is likely to cause adverse effects. A variance has been requested from the U.S. Fish and Wildlife Service for these activities to occur within this buffer. Disturbances would be in the form of noise of road clearing and blasting, noise from log loaders and log trucks, and human presence. Disturbance would likely occur for about 5 years (during the life of the project).

There would likely be increased harvest of game and furbearer species during the 5 years the logging camp would be in operation; after that time, harvest would decrease to existing. Additional information concerning the effects on the bald eagle and other wildlife can be found in the Wildlife, Transportation, Threatened and Endangered Species (TES) sections of this document and in Appendix B.

Alternative C would have fewer adverse effects on the bald eagles than Alternatives B or D. This alternative does not have road construction or an LTF in close proximity to the bald eagle nests, nor does it propose a land-based camp or sortyard. Disturbance to bald eagles under this alternative may occur in the form of noise disruption from helicopter operations between harvest units and the barge delivery location. Flight paths and harvest timing can be altered to avoid close proximity to nests but they may still be affected by the noise at critical times. See the Wildlife, Transportation, TES, and Appendix B for effects on other wildlife species as a result of harvest or road-building operations.

Visual Resources

A land-to-barge type LTF would be built in Alternatives B and D. The large size, linear bold shape, and saltwater location of LTFs generally dominate the landscape when viewed within the foreground distance (less than 1/2 mile). The relatively low profile, however, helps mitigate the negative visual impacts when viewed from the middleground (1/2 mile to 5 miles).

Though this facility may not dominate the view from the middle of Ernest Sound (about 2 1/2 miles away), it would be clearly evident and would not meet the VQO of Retention in the Old-growth Habitat LUD. From the middle of Ernest Sound, it would probably meet a VQO of Partial Retention. An LTF is one of the facilities for which an exception to the designated VQO of Retention can be made on an individual basis.

The LTF and operating site would be removed after harvest operations are completed. The rock fill would be spread on the operating site. With these measures it would take 50 to 60 years to establish enough forested texture for the area to attain a VQO of Retention.

A road leading to the LTF would also be built in Alternatives B and D. The potential visual impact of the road accessing the LTF would be mitigated by aligning it to be screened by a buffer of trees, and paralleling slope contours as much as possible to avoid leaving a visible notch created by the right-of-way (ROW) clearing. This would reduce the impact and this segment of road would meet the VQO of Retention. The log sortyard, land camp and other roads in Alternatives B and D would not be seen from Ernest Sound or Vixen Inlet.

Alternative C would build no LTF or roads on the shore so there would be no adverse effect on the existing visual quality. The float camp and the helicopter-loading barge would be visible.

Long-term Accessibility

Alternative A would defer the timber land accessibility question to a future date. Future access could be made through road construction, helicopter-to-saltwater barge or a combination of these options. It would be assumed that all of the volume on the 957 acres of suitable ground would still be available at a future date.

Alternatives B would harvest 620 acres of the total suitable acres, leaving 356 available for a future entry, plus another entry in 205 acres that were treated using uneven-aged management. Under Alternative B, roading infrastructure could be reused but at a considerable cost of reopening the road system and seeking a permit for an LTF in about 50 years.

Alternative D would be similar to Alternative B in that much of the road infrastructure could be reopened. Additional acres would be available to defer the cost. In about 50 years, 337 acres of previously unharvested timber and 620 acres of uneven-aged managed stands would be available for harvest.

Alternative C would be similar to the suitable acres available under Alternative D but without the roading infrastructure. Future activities could consider the same helicopter logging system or choose to seek a roaded option.

Cumulative Effects

The area considered for cumulative effects analysis is the marine and adjacent upland environment within 1 mile of the LTF. This is appropriate because effects from activities or events from a further distance are not anticipated to reach or interact with effects within this area or marine environment.

Past activities include the 14-acre beach harvest that occurred in the Emerald Bay estuary about 60 to 80 years ago. This area appears natural and is not evident to the casual viewer. No adverse effects to the marine environment are apparent at this time as a result of this harvest. No other past activities or events have been noted in this area of cumulative effects analysis.

The road construction or harvest activities described in the action alternatives are designed to be compliant with Forest Plan Standards and Guidelines as well as BMPs so effects are not anticipated to reach the marine environment considered for cumulative effects.

Proposed activities considered for cumulative effects analysis include road construction, LTF construction, LTF removal, log sortyard, float camp, helicopter barge, plus post-harvest camp and sortyard reclamation. Past activities are not interacting with the proposed activities and would not have a cumulative effect. Nor are the current activities interacting with each other in such a way as to have a cumulative effect on the marine environment. They are isolated from each other by space or alternative design. The land camp and sortyard effects would not reach the marine environment.

There are no reasonably foreseeable activities planned within the project area; therefore, no cumulative impacts are anticipated from future projects.

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Mitigation

The LTF and operating site would be removed after harvest operations are completed in Alternatives B and D. The rock fill would be spread on the operating site.

A road leading to the LTF would also be built in Alternatives B and D. The potential visual impact of the road accessing the LTF would be mitigated by aligning it to be screened by a buffer of trees, and paralleling slope contours as much as possible to avoid leaving a visible notch created by the right-of-way (ROW) clearing. This would reduce the impact and this segment of road would meet the VQO of Retention.

Monitoring

Conduct annual dives and complete dive reports on the active LTF.

Recreation

The Tongass recreation and roadless area resources are discussed in considerable detail in the Forest Plan FEIS, Chapter 3. Recreation resources are also discussed in the Scenic and Recreation Resources Report for the Emerald Bay project (1999).

Affected Environment

All recreation occurring in the project area is accessible by boat or floatplane. There are no developed recreation sites near Emerald Bay. Fishing and boating may occur along the shorelines of Emerald Bay and Emerald Creek. Upland recreation may include hunting and hiking in the alpine areas south and west of Emerald Bay.

Inventory of the recreation resource is accomplished by the Recreation Opportunity Spectrum (ROS). Six recreation experience settings from Primitive to Urban define varying scales of human interaction levels and visitor expectations. This range reflects levels of current and past human management activities. The project area is classified as Primitive.

Recreation places are geographical areas of small to moderate size that receive recurring use. They have features that are particularly attractive to people engaging in recreation activities. These features may be beaches, streamside or roadside areas, trail corridors, hunting areas, camping and picnic areas, anchorages, or other features. The project area has no identified recreation places.

Environmental Consequences

Although there is little or no known recreation use in the project area except for occasional hunting use, and there would be no impacts to any dispersed or developed recreation sites. Alternatives B and D would change the Recreation Opportunity Class (ROS) setting of the area. Under Alternatives A and C, the entire 7,845-acre area would remain classified as Primitive.

Alternative B would introduce a road network and clearcuts in this area. This would result in the following changes to the ROS classes.

- Roaded Natural – 546 acres (This represents the segment of road through the old-growth reserve).
- Roaded Modified – 1,562 acres
- Semi-Primitive Non-Motorized – 3,301 acres
- Primitive – 2,436 acres

Alternative C includes no roads and harvests all the units with helicopter. Almost all acres are prescribed for 50 percent retention, single-tree selection. Hence all of the 7,845 acres of the project area would remain classified as Primitive.

Recreation Opportunity Spectrum

Direct Effects

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Alternative D proposes a road along the valley bottoms of the Emerald and Birch Creek drainages, but harvests all the units by helicopter. As with Alternative C, almost all units are prescribed for 50 percent retention, single-tree selection. This results in the following changes to the ROS classes.

- Roaded Natural – 1,260 acres
- Semi-Primitive Non-Motorized – 4,149 acres
- Primitive – 2,436 acres

Cumulative Effects

There are no expected cumulative effects on recreation associated with activities proposed in the alternatives, because the road and LTF would be closed to public use. The area considered for cumulative effects is the project area. Actions outside the project area would have little or no effect on recreation within the project area. The project area receives little recreational use due to the remoteness and difficult access of the area. Increased recreational use would be minimal and limited to occasional foot traffic on the closed road; however, hiking the closed road would become more difficult with time, as the roadbed would grow in with red alder (North, M. pers. comm.).

Mitigation

No project-specific mitigation identified.

Monitoring

No post-harvest monitoring identified.

Scenery

The following discussions and analysis are based on and summarized from the Scenic and Recreation Resources Report for the Emerald Bay project (1999). The scenic resources of the Tongass are also discussed in the Forest Plan.

Affected Environment

Visual Character of the Project Area

The project area is part of the Coastal Hills character type. This character type is one of six described for the Tongass National Forest. These are large geographical areas; each has some general distinguishing visual characteristics. Broad rounded or blocky ridges or peaks characterize the Coastal Hill type with elevations ranging on average between 2,000 and 3,000 feet. The landscape of this project area is typical of the Coastal Hills character type.

Appendix F of the Forest Plan identifies Ernest Sound and Clarence Strait as travel routes for cruise ships and the Alaska Marine Highway. The scenery of the Emerald Bay project area is primarily viewed from Ernest Sound, Figure 3-5. Ernest Sound is seldom used by the Alaska Marine Highway (State ferry) system between Ketchikan and Wrangell, but is an alternate route. Some small cruise ships, barge traffic, and numerous pleasure craft pass through Ernest Sound. Ernest Sound is oriented in a southwest to northeast direction with the project area to the east of this channel. A steep-faced blocky ridge rising from saltwater to elevations of 800 feet at the northern end to almost 2,600 feet just above the mouth of Emerald Bay characterizes the northern two-thirds of the project area. This steep-faced ridge rises in a series of steps from north to south, culminating in the 2,600-foot peak, which marks the most prominent landform in the project area. This sequence forms a bluff-like appearance. The southern and eastern portions of the project area south of Emerald Creek and at the head of the creek are characterized by broad, gentler-sloped, rolling terrain. The visible portions of this inland ridge where some of the proposed harvest is located are framed and accentuated by a noticeable gap created by the Emerald Creek drainage cutting through the terrain described above. This inland ridge top has visible alpine and open muskeg areas while dense forests cover the north-facing slopes.

Viewsheds

Forest Plan Priority Travel Routes and Use Areas and Viewsheds

For planning and analysis, the scenic resource is described by viewsheds. A viewshed is an area of land visible from a specific use area or travel route. The Forest Plan identifies specific priority use areas and travel routes from which the scenic resource is to be specifically managed. There are two priority use areas in the vicinity of the Emerald Bay project area. Spacious Bay, which is on the east side (Behm Canal) of the Cleveland Peninsula, sits directly east of the project area. Since terrain features clearly block any view of any part of the project area from Spacious Bay, this use area will not be further addressed in this analysis. Vixen Inlet is just south of the project area on the west side (Ernest Sound) of the Cleveland Peninsula. One priority travel route, the Alaska Marine Highway ferry route through Ernest Sound, passes directly adjacent to the project area.

The viewshed of the project area as seen from the Ernest Sound ferry route, described above, includes the area north of Emerald Bay; a steep-faced ridge rising from about 800 feet elevation to over 2,500 feet elevation. South of the bay, the landscape changes to very gently sloping terrain that features a broad, gently rounded knob reaching just over 1,000 feet elevation. At the head of Emerald Creek drainage, the terrain has less relief and a gently sloped ridge that is partially visible between the steep escarpment to the north and the gentle knob to the south.

3 Environment and Effects

From Vixen Inlet, looking to the north, the south side of the above-mentioned broad rounded knob is visible. This side of the knob is not in the project area. Just to the east of this knob, a portion of the ridge that rises above the head of Emerald Creek is visible.

Non-Priority Travel Routes and Viewsheds

The Forest Plan does not recognize small aircraft routes or commercial jet routes as priority travel routes. However, in a project-level analysis, such routes can be identified and the impacts of a proposed action assessed. This project area is on a small aircraft route between Ketchikan and Wrangell. Aerial views of the project area from small aircraft are usually viewed from a 1,500-foot altitude. Emerald Bay is the northwestern terminus of a noticeable terrain feature; a mountainous escarpment connects Spacious Bay on West Behm Canal to Emerald Bay. This visible and dominating physical feature marks a change in landscape types, from open, low-elevation muskegs interspersed with a few hills to a large, massive block of mountains with large areas of alpine meadows at the 1,500 to 2,500-foot elevation. Both commercial and private aircraft follow this natural terrain feature mostly due to safety.

Existing Visual Condition of Viewsheds

For the most part, the visual condition of the project area is considered Type I; it is undisturbed where predominantly only ecological changes have taken place. A person on the beach around Emerald Cove would notice some indications of small-scale hand logging mainly along the creek bottom and A-frame beach logging, which occurred in the early 1900s (60-80 years ago). However, from the Ernest Sound boat route, almost all of the viewshed identified above is in a Type I, or natural unaltered condition. This is a result of full regeneration of the early 1900s harvest area to a near-mature height, color, and texture.

Forest Plan Visual Quality Objectives

The Forest Plan provides specific visual management direction for the National Forest System lands within the project area. The project area is allocated to two land use designations (LUDs). Most of the project area, including most of the slopes along Ernest Sound, is allocated to Old-growth Habitat. The remainder of the project area, primarily an interior valley that extends inland from the upper reaches of Emerald Creek, is allocated to Timber Production (Figure 1-2). The visual quality objective (VQO) in an Old-growth Habitat LUD is Retention in all portions of a viewshed (foreground, middleground, and background). Exceptions to this for small areas of non-conforming developments, such as transportation developments and log transfer facilities, may be considered on a case-by-case basis. Designs and materials for these facilities should be compatible with forms, colors, and textures found in the surrounding landscape.

In a Timber Production LUD the visual quality objectives are Modification in the foreground portion of the seen area and Maximum Modification in the middleground and background portions of the seen area. To meet a Modification VQO, an activity can dominate the natural characteristic landscape but its design should borrow significantly from natural forms, lines, and colors of the natural landscape. To meet Maximum Modification VQO, activities can significantly dominate the natural landscape; however, the activity should be designed to appear to borrow from natural forms, lines, and colors, at least from a background viewing distance.

Environmental Consequences

The effects discussion centers on the viewsheds just described. All other areas are considered unseen from saltwater. See descriptions of alternatives in Chapter 2 regarding unit prescriptions and basal area cover retained.

Direct and Indirect Effects of the Alternatives

Priority Travel Route - Alaska Marine Highway Ferry Route - Ernest Sound

As a result of Alternative A, the No-action Alternative, this viewshed would remain in a Type I or essentially unaltered condition.

Most harvest in Alternative B would be clearcut. The clearcut units are back in the interior drainages that are hidden from view from Ernest Sound. Only Unit 12 is potentially visible from Ernest Sound; however, most of this unit is prescribed for single-tree selection where about 50 percent of the stand would be retained. Given the moderate slopes and the obliqueness of portions of the unit, this harvest would not likely be visible and would maintain a higher objective than the adopted VQO of Maximum Modification. The impacts of this harvest would probably meet a VQO of Retention.

Alternatives C and D harvest units through single-tree selection and group selection with about 40 to 50 percent of the stand retained. These alternatives would maintain a higher objective than the VQO of Maximum Modification and come close to meeting the VQO of Retention as seen from Ernest Sound. The resulting viewshed from Ernest Sound would be in a Type II or naturally appearing condition.

Alternatives B and D propose LTF, road construction, rock pit, camp and sortyard facilities within the Old-growth Habitat LUD. It has been determined (see the Transportation section and Marine section) that there are no other feasible routes or locations for these facilities. The design and location of these facilities attempt to minimize the impacts on the visual quality. The LTF is designed to be shorter and would utilize logs for the structural framework of the bulkhead. The road accessing the LTF is angled to lessen the visibility of the access road. Also, roads and road clearing widths are narrower than typical classified roads. The camp and sortyard are located inland behind vegetative screening and flatter topography to minimize visibility. The LTF would be removed after its use and the shoreline would be restored to a more-natural condition.

Alternative C proposes the use of a helicopter landing barge and float camp that would be visible, but would not leave a lasting mark on the upland viewshed. These facilities would be removed after their use.

Vixen Inlet

As a result of Alternative A, the No-action Alternative, this viewshed would remain in a Type I or essentially unaltered condition.

A small portion of the slopes where Unit 12 would be located is visible in the Middleground from Vixen Inlet. However, in all action alternatives the harvest in this unit would not be evident because 50 percent of the basal area would be retained. These alternatives would maintain a higher objective than the adopted VQO of Maximum Modification and would come close to meeting the VQO of Retention. The resulting viewshed from Ernest Sound would be in a Type II or naturally appearing condition.

Non-Priority Travel Route Viewshed - Ketchikan-Wrangell Aerial Flight Path

All of the Emerald Bay harvest units would be visible from the air. Depending on aircraft flight altitudes and direction, these units would be in either a foreground or middleground viewing distance, and noticeable by air travelers. Although the majority of these units would be harvested by alternative harvest methods, clearcut units in Alternative B would create openings that would dominate the landscape. From aerial viewpoints, this harvest would meet the VQO of Maximum Modification that applies to unseen land or land seen from a non-priority travel route. The single-tree selection and group selection harvest in Alternatives C and D may be evident in a few places from low altitude flights, but would probably not be evident from an altitude of several miles. In any case, these alternatives would meet the VQO of Partial Retention.

Cumulative Effects

The intent of Alternative B would be to harvest the remaining suitable timber in the interior valley over a 100-year rotation. Therefore, over time, from the air this valley would change from an old-growth textured appearance to a patchwork of different textured stands resulting from the mix of stand age-classes. From the water viewpoints at least 2-3 miles away the slopes that are seen in this interior valley would continue to have close to a near-natural appearance as the residual trees in the original partial cuts are harvested through the rotation.

3 Environment and Effects

Harvest areas and edges visible to the Ernest Sound and Vixen Inlet viewshed would be designed to reflect nearby landform shapes. The impact created by the openings of subsequent harvest in visible stands would soften as the stands regenerate. Ultimately, the openings would resemble natural occurrences from all points of view.

The intent of Alternatives C and D is to continue to harvest trees through single-tree selection and group selection with entries every 50 years. This would maintain the landscape in a naturally appearing, to nearly unaltered condition from the perspective of any viewpoint.

Other projects planned on National Forest System land to the north of the Emerald Bay project are not expected to affect the viewsheds of the Emerald Bay project area. These are discussed in the Introduction to Chapter 3.

The intent of Alternatives C and D is to continue to harvest trees through single-tree selection and group selection with entries every 50 years. This would maintain the landscape in a naturally appearing, to nearly unaltered condition from the perspective of any viewpoint.

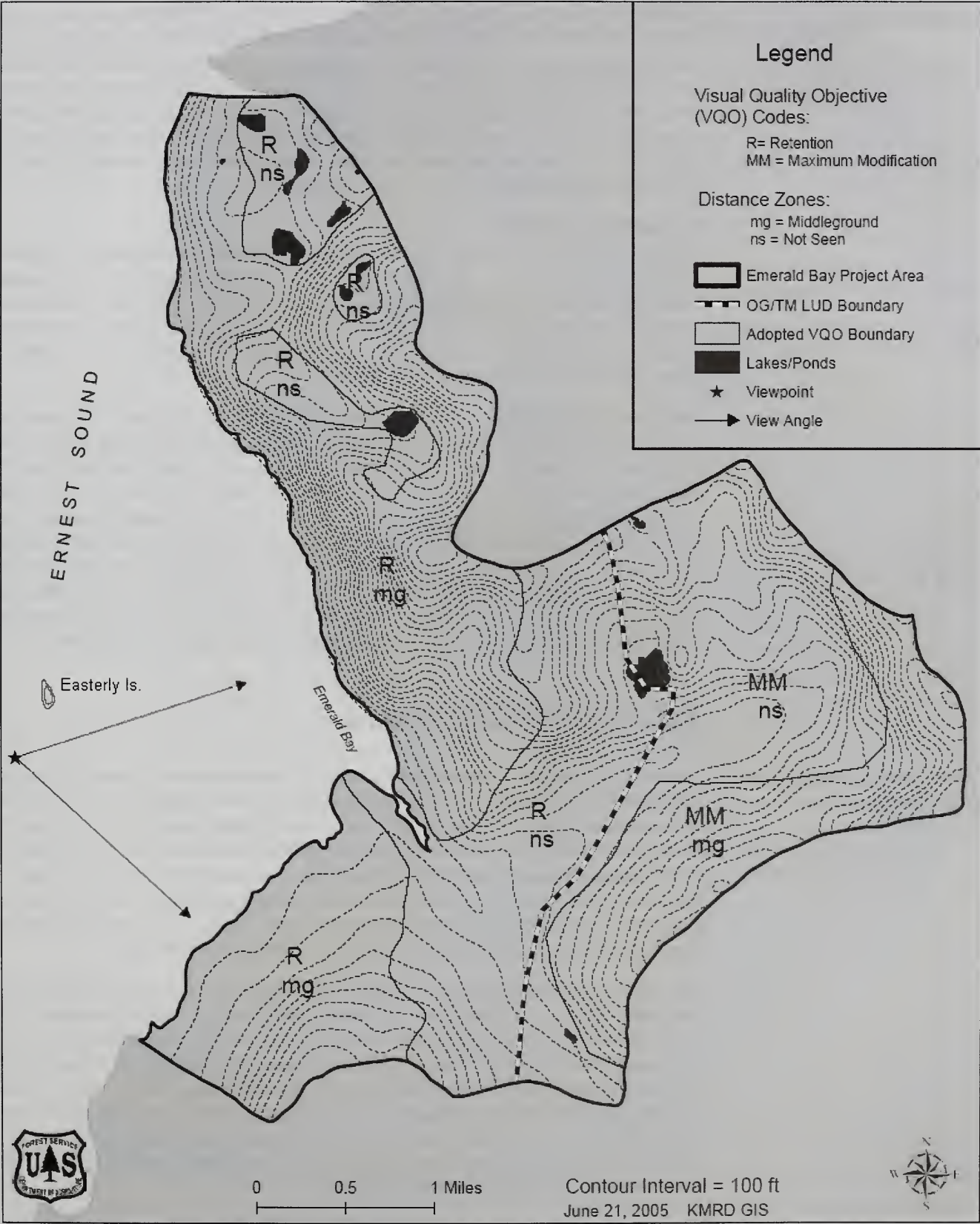
Mitigation

Refer to the Marine Environment, Log Transfer Sites and Related Facilities section of Chapter 3.

Monitoring

No monitoring is identified.

Figure 3-5
Visual Quality Objectives and Distance Zones



Source: Forest Service GIS, T.Conner

Cleveland Roadless Area

Introduction

Roadless areas are components of National Forest System lands that are undeveloped. These lands do not have improved roads maintained for motorized travel, extensive timber harvest, or other developments. The undisturbed landscapes of roadless areas provide habitat for plants, birds, fish and wildlife, clean drinking water, a place to recreate away from roads and development, and opportunities to study natural ecosystems. Roadless areas were originally identified during the Roadless Area Review and Evaluation studies (RARE and RARE II) done in the 1970s. These studies identified areas that would meet the minimum criteria for inclusion in the National Wilderness Preservation System.

Forest Plan Analysis

During Forest Plan revision, all National Forest System lands, including roadless areas, were included in that analysis. The previously identified roadless areas were re-examined to determine their land use designation (LUD). About 90 percent of the roadless areas in the Tongass National Forest were included in non-development LUDs such as Remote Recreation or Semi-remote Recreation. The other 10 percent were assigned to development LUDs that allow timber harvest or road construction.

During the 1989 roadless evaluation, the Cleveland Roadless Area (#528) was ranked at 23 points out of 28 possible points under the Wilderness Attribute Rating System (WARS). This rating was re-evaluated and the Cleveland was given a score of 25 in the Forest Plan SEIS. This score is more reflective of the large size of the area and its ability to absorb the various developments and activities. The median WARS score for Tongass Roadless Areas is 21 and the Cleveland Area ranks 12th from the highest (along with 12 other roadless areas) among the 109 Tongass Roadless Areas. In the 2003 Record of Decision for the Roadless Area Evaluation for Wilderness Recommendations, no roadless areas were recommended for wilderness designation. Therefore, the LUD classifications of the 1997 Forest Plan Revision guide the management of the Cleveland Roadless Area (see Table Roadless-1).

Affected Environment

Cleveland Roadless Area #528

The more noteworthy values of the Cleveland Roadless Area are its outstanding saltwater fishing in the major bays, its outstanding opportunity for solitude and primitive recreation, and its unmodified natural appearance. For a complete description of the Cleveland Roadless Area (#528), refer to the Tongass Land Management Plan Revision Final Supplemental Environmental Impact Statement for Roadless Area Evaluation and Wilderness Recommendations (2003 Forest Plan SEIS, Appendix C2-536 to C2-543). The following discussion looks at the most important values identified for the Cleveland Roadless Area and describes the effects of alternatives on those roadless characteristics.

The Cleveland Roadless Area is located on the southern end of the Cleveland Peninsula on the mainland. The city of Ketchikan is located approximately 15 miles southeast of the area. The city of Thorne Bay is located about 10 miles to the west across Clarence Strait. Access to the Cleveland Peninsula is by boat or floatplane through the major bays. This part of the peninsula is the major land area between Revillagigedo (Revilla) Island and Prince of Wales Island. Meyers Chuck is a small community 10 miles southwest of the project area. A trail that extends from Meyers Chuck provides access to some of the roadless area. Access into the interior part of the Cleveland Peninsula is by foot, floatplane, or helicopter. There are no places suitable for landing wheeled airplanes.

The Emerald Bay project area lies entirely within the 191,477-acre Cleveland Roadless Area (Figure 3-6). This project area is 33 percent Timber Production LUD and 67 percent Old-

growth Habitat LUD. The following table displays the LUDs designated for the Cleveland Roadless Area and the portions of those LUDs in the Emerald Bay project area.

Table Roadless-1
Land Use Designations in the Cleveland Roadless Area and Project Area

Land Use Designation	Area within Cleveland Roadless Area #528	Area within the Emerald Bay Project Area
Development Land Use Designation		
Timber Production	63,329 acres	2,586 acres (33% of project area)
Modified Landscape	13,989 acres	0 acres
Minerals ¹	17,462 acres ¹	0 acres
Transportation and Utility System	NA	0 acres
Non-development Land Use Designations		
Old-growth Habitat	38,938 acres	5,259 acres (67% of project area)
Semi-remote Recreation	75,196 acres	0 acres
Remote Recreation	25 acres	0 acres

¹ Acres in the Minerals LUD are included in the Timber Production, Modified Landscape, Old-growth Habitat, and Semi-remote Recreation LUD acres.

Source: Forest Service GIS

Proximity to Wilderness and Other Roadless Areas

Past legislation and the 1997 Forest Plan determined the spatial placement and distribution of roadless areas across the landscape of the Tongass National Forest. Most of Southeast Alaska is currently unroaded. Lands withdrawn by Congress, such as Wilderness and National Monuments, comprise about 41 percent of the Tongass National Forest. Approximately 90 percent of the roadless areas, which do not include Wilderness areas, are within the land use designations that would retain their unroaded condition. The Cleveland Roadless Area (#528) is a component of a much larger roadless land area that includes all of the Cleveland Peninsula through the Misty Fiords National Monument Wilderness Area, located about 21 miles to the east. South Etolin Island Wilderness is located northwest across Ernest Sound, approximately 3 miles away. The Cleveland Roadless Area (#528) is bordered to the northeast by the Frosty (#210) and North Cleveland (#529) Roadless Areas. Other nearby roadless areas include Behm Islands (#525) and North Revilla (#526) located southeast across Behm Canal from the area, and Kasaan (#520) located southwest across Clarence Strait. Additional roadless areas in proximity to the Cleveland Roadless Area are displayed in Figure 3-7 and listed in Table Roadless-2 and Table Roadless-3.

3 Environment and Effects

Table Roadless-2
Other Roadless Areas and Wilderness in the Area¹

Roadless/ Wilderness Area	Acres
Misty Fiords National Monument	2,285,000
Madan (#204)	69,126
Aaron (#205)	79,147
Cone (#206)	127,874
Harding (#207)	179,350
Bradfield (#208)	204,133
Anan (#209)	38,162
Frosty (#210)	45,522
Cleveland (#528)	190,230
North Cleveland (#529)	109,639
Hyder (#530)	116,304
Total Roadless Area on Mainland	3,444,487

¹See also Figure 3-7.

Source: Tongass Land Management Plan FSEIS Roadless Area Evaluation for Wilderness Recommendations, 2003

Table Roadless-3
Roadless Areas on Islands Adjacent to the Cleveland Roadless Area¹

Roadless	Acres
McKenzie (#519)	80,650
Kasaan (#520)	7,605
Behm Islands (#525)	4,944
North Revilla Island (#526)	225,444
Total Roadless Area on Islands	318,643

¹See also Figure 3-7.

Source: Tongass Land Management Plan FSEIS Roadless Area Evaluation for Wilderness Recommendations, 2003

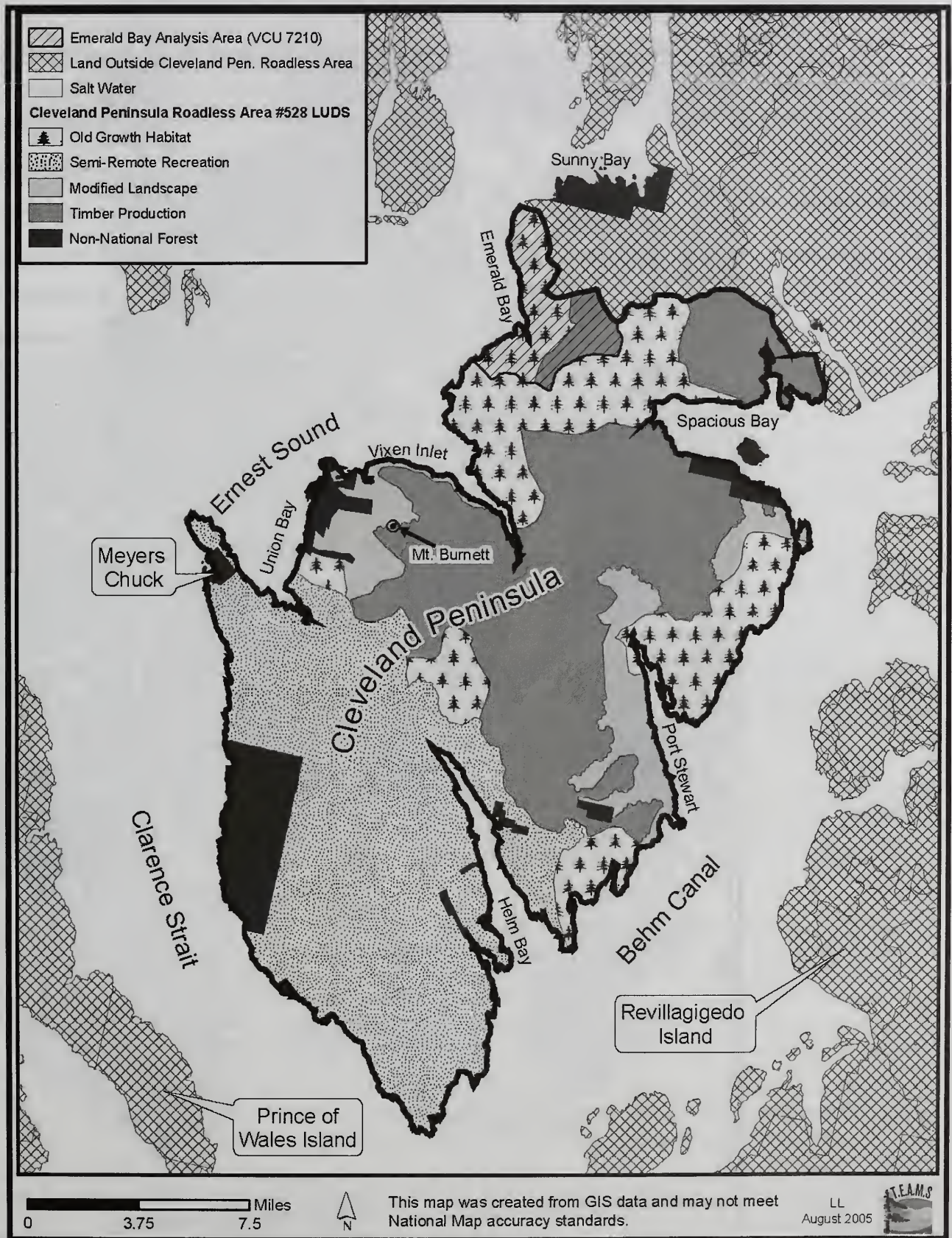
Table Roadless-4
Total Roadless Area in Proximity to the Cleveland Roadless Area¹

Mainland vs. Island	Acres
Contiguous Mainland Roadless Area	3,444,487
Adjacent Roadless on Islands	318,643
Total Roadless Area in Proximity to the Cleveland Roadless Area	3,763,130

¹See also Figure 3-7.

Source: Tongass Land Management Plan FSEIS Roadless Area Evaluation for Wilderness Recommendations, 2003

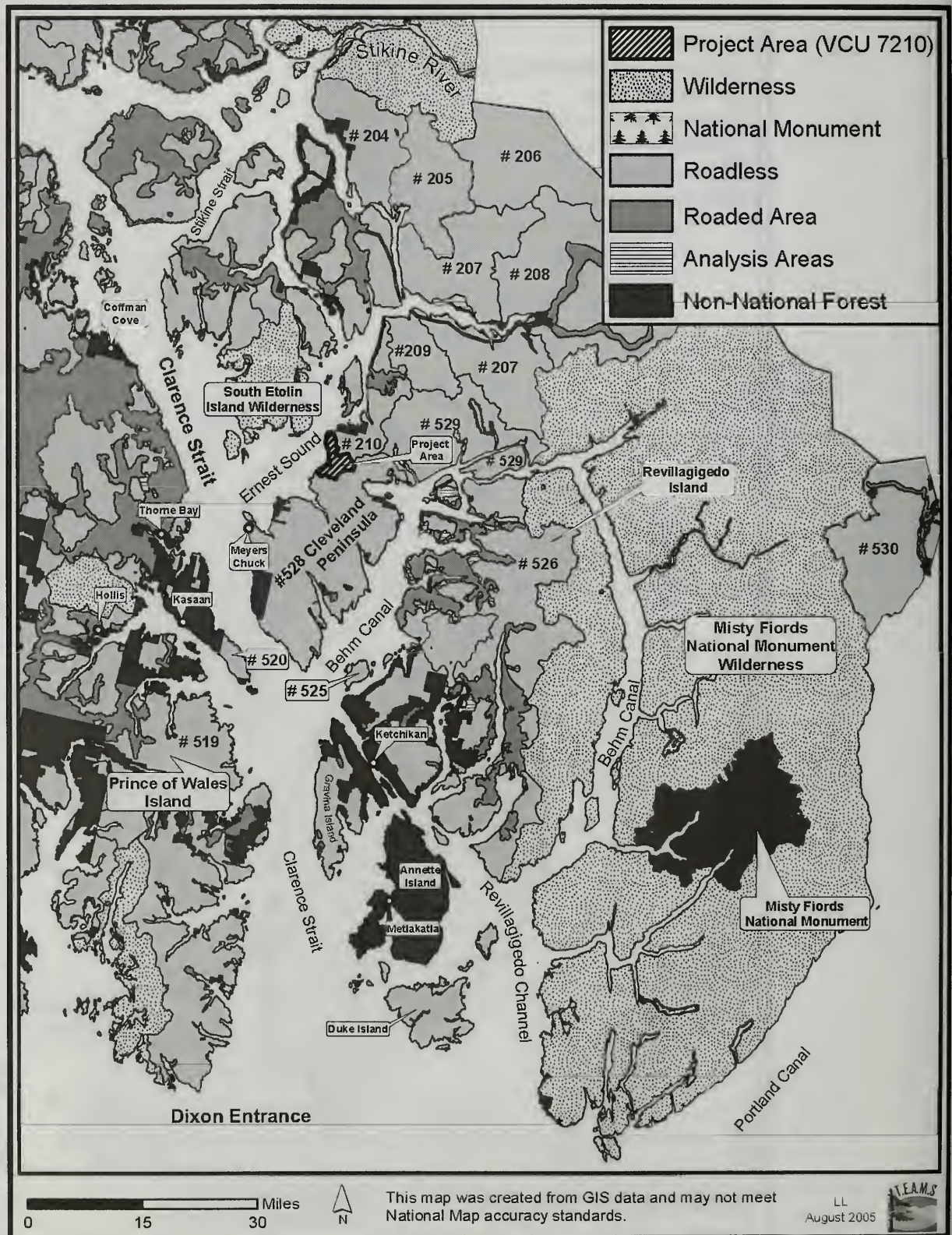
Figure 3-6
Cleveland Roadless Area #528



Source: GIS, TEAMS, L.LaPorta 2005

3 Environment and Effects

Figure 3-7
Roadless and Wilderness Areas Adjacent and Contiguous with the Cleveland Peninsula



Source: GIS, TEAMS, L.LaPorta 2005

Proximity to Lands That Could be Developed

Few external influences are present in this roadless area. Mineral exploration is taking place on Mt. Burnett between Vixen and Union Bays (Chapter 1, Figure 1-1). This activity is 6 miles southwest of the Emerald Bay project area. The exploration consists of drilling test cores into the mountain for laboratory analysis for mineral content. The 12-foot x 12-foot drill pad is helicopter lifted to various sites on the mountain. The holes are being sealed upon the departure of the drill rig and pad. This mineral exploration started in 2001. The 2005 plan of operation is to drill up to 30 test holes. There are no existing plans for commercial mining at this site.

The Ketchikan Pulp Company owns a parcel of land in the Granite Creek and Helm Bay drainages. The area was logged in 1998 using helicopter systems. No roads were built to access the timber harvest areas. Sealaska Native Corporation manages the land in the southwest peninsula for timber. On the west side lies the settlement of Meyers Chuck. Residents and visitors venture into the roadless area. All of these areas with potential development are 6 miles or further to the south of the Emerald Bay project area.

Landscape Character of the Project Area

The project area generally displays natural characteristics when viewed from nearby water travel routes and when inside the area. The area has remained generally unaltered by human activity, with the exception of several areas where beach logging has occurred on the east side of the area. Mining and timber harvesting have occurred at Helm Bay. Mineral reclamation work is expected to start in 2005 at the Gold Standard mining claim in Helm Bay. This activity is 15 miles south of the Emerald Bay project area. The activity includes closing seven old mine entrances for safety purposes. The work is estimated to be completed in 2005.

The area is predominately unmodified and is generally not fragmented by land ownership or land use patterns. The area's high degree of natural integrity is partly due to the surrounding large saltwater passages and adjacent large roadless areas.

Diversity of Plants and Animals

Vegetation in the Cleveland Roadless Area is typical of Southeast Alaska coastal temperate rain forest. Western hemlock, Sitka spruce and a cedar component are the dominant overstory species. The forest is interspersed with muskeg areas. Approximately 54 percent of the forested land is mapped as productive old-growth forest.

The Cleveland Roadless Area provides habitat for wolf and black bear, Sitka black-tailed deer, otter, marten, mink, loons and common waterfowl. There is also a population of brown bears on the peninsula and mountain goats have been reported throughout this area. Refer to the Wildlife analysis in this chapter for additional information on animals and their habitats.

Social and Recreational Use

The outstanding saltwater fishing in the major bays is a key attraction to this area. The major bays surrounding the Cleveland Roadless Area are: Vixen, Union, Helm, Port Stewart, and Spacious. Emerald Bay is smaller than these major bays and not as well protected from open waters. The majority of salmonid habitat and production occurs in the Vixen, Port Stewart, Black Bear and Wasta watersheds. Only a small portion of the Wasta watershed (0.6 miles of a Class II tributary to Wasta Creek) is on the south boundary of the Emerald Bay project area.

Other areas of special interest are the large tidal flats at the ends of the bays and the upland lakes between Helm Bay and Clarence Strait. The Emerald Bay project area is about 12 miles to the north of these upland lakes and has a small tidal flat at the mouth of Emerald Creek.

Recreation activities pursued in the area include boating, hiking, and camping. Eight public recreation cabins and shelters are located on the east side of the Cleveland peninsula, where most recreation takes place.

3 Environment and Effects

The Tongass Fish and Wildlife Resource Assessment (ADF&G 1998) indicated that eight of the VCUs located within this roadless area are subsistence use areas with a high sensitivity to disturbance. The Emerald Bay project area is one of these VCUs (#7210), largely because of its Timber Production land use designation (LUD). Residents of Meyers Chuck and Wrangell use the Cleveland Roadless Area for subsistence hunting. Refer to the Subsistence section of this chapter that follows for additional discussion.

The Cleveland Roadless Area is mostly unmodified and natural appearing. The natural integrity and apparent naturalness is very high. The opportunity for solitude is also very high and the opportunity for recreation is outstanding. The area provides primarily primitive recreation opportunities. The long-term recreation potential of the area centers on continued management of the cabin system and additional trails for dispersed recreation activity. There are 12 outfitter/guides with authorized use on the Cleveland Peninsula.

Reference Landscapes

There are no known features of ecologic, geologic, scientific, or cultural significance. There are no existing or proposed Research Natural Areas in this roadless area. Two ecological subsections found in the Cleveland Roadless Area are not represented within existing wilderness or LUD II. These are the Vixen Inlet Till Lowlands and Ketchikan Mafics/Ultramafics. Most of the Emerald Bay project area is within the Zimovia Strait Complex subsection. A small portion of the medium OGR is on the boundary between the Zimovia Strait Complex and Vixen Inlet Till Lowlands (Forest Plan SEIS, page C2-547).

Traditional Cultural Properties

Numerous prehistoric and historical sites have been identified through archeological surveys and historical documents. Early settler history in this area centers on the fishing industry and mining. The community of Meyers Chuck was founded as the base for a fishing fleet and cannery. Extensive exploration for minerals in Helm Bay took place during the 1900s, resulting in several patented claims. In the mid 1900s, fishing, hunting and trapping took place in the general vicinity of Union Bay and Vixen Inlet. Helm Bay is the traditional origin place of the Kiks'adi clans from Wrangell and Sitka. Port Stewart is the traditional origin place of the Ganaxtedi clan of the Stikine Kwan. Refer to the Heritage Resources section for additional information.

Environmental Consequences

This section describes the effects of the alternatives on Cleveland Roadless Area #528. The 2003 Forest Plan SEIS identified roadless areas as generally beginning 1,200 feet from existing roads and 600 feet from recent clearcuts. The appropriate zones have been applied to the harvest units and the proposed road in all of the action alternatives to estimate effects.

As documented in Appendix C of the 2003 Forest Plan SEIS Roadless Area Evaluation, older units harvested by beach logging and helicopter logging do not detract from the roadless characteristics since these units are determined to be mostly naturally appearing. Part of this determination was made because helicopter units usually involve partial harvest. Units would retain a forested, natural appearance after harvest is completed. Areas treated by selection using the helicopter harvest system would retain their roadless characteristics.

The timber harvest and road construction activities would affect the Cleveland Roadless Area landscape character and the opportunity for solitude within the Emerald Bay project area.

Direct and Indirect Effects of the Alternatives

Soil, Water and Air

Forest Plan Standards and Guidelines are designed to protect these resources while allowing timber harvest activities in development LUDs. None of the alternatives result in adverse effects on air, water, or soil resources. These resources are further protected by implementation

of Best Management Practices. The complete analyses for these resources are discussed in Soil, Water and Wetlands sections of this chapter.

Species Diversity

Species diversity would not be reduced by implementation of any of the action alternatives because the effects would be short-term on a very small portion of the roadless area (the entire VCU 7210 is about 4 percent of the acres within the roadless area), and the project would not inhibit use of travel corridors. Viability of wildlife populations would be ensured by habitat maintenance through implementation of Forest Plan Standards and Guidelines and Best Management Practices. For additional information on species diversity, refer to the Biodiversity and Old Growth, Essential Fish Habitat, TES, and Wildlife sections of this chapter, and the biological assessment in Appendix B.

Social and Recreational Use

No effects to social and recreation use from the Proposed Action or alternative activities are expected because the most-used recreation areas are outside of the Emerald Bay project area. Refer to the Recreation section in this chapter for additional information.

The Class II tributary to Wasta Creek (one of the high salmonid producers) would not be adversely impacted because riparian buffers maintain micro-climates, prevent sediment transport into the stream, and provide nutrients and large woody debris to maintain pools and riffles and other components of productive fish habitat.

The finding from the subsistence analysis is that the Emerald Bay project would not pose a significant possibility of a significant restriction on any subsistence resource. Refer to the Subsistence section that follows.

Alternative A maintains the natural appearance of the area. Alternative B would clearcut 396 acres and harvest 205 acres with single-tree selection, an uneven-aged management prescription. The clearcuts would result in a change from the existing natural, unmodified landscape to a managed-looking, modified landscape. Alternatives C and D propose 620 acres of uneven-aged harvesting. The uneven-aged harvest treatments would more closely resemble the natural characteristic landscape. The road clearing width proposed under Alternatives B and D would also not be characteristic of a natural landscape. The effects of these activities would persist about 60 years, which is similar to other past clearcut harvest on the Cleveland peninsula.

On a primary viewshed basis, only a very small portion of the proposed activities in the action alternatives would be visible from the Ernest Sound Alaska Marine Highway ferry route viewshed, and the Vixen Inlet viewshed. All alternatives would retain the characteristic landscape for this viewshed. The non-primary viewshed is the Ketchikan-Wrangell aerial flight path. Alternative A would maintain the existing landscape character. Alternative B would adversely change the characteristic landscape in this viewshed. Alternatives C and D would partially retain the existing characteristic landscape. Refer to the Scenery section in this chapter for additional information.

Noise related to road construction and harvest operations under the action alternatives would affect the quiet character enjoyed in the project area. It would occur seasonally over the 5 years estimated to complete the timber sale project. The noise of helicopters tends to carry a further distance than cable operations. Alternatives C and D would generate the most helicopter noise because they have the most amount of helicopter timber volume. (See Table 2-1.)

Reference Landscapes

Road construction in Alternatives B and D would reduce the amount of productive old growth within the project area by 1.4 to 1.6 percent of the POG within the OGR in the Cleveland Roadless Area. Except for tree removal in the road corridor, no other tree removal is proposed in any of the alternatives. The remainder of the OGR would remain in a natural setting providing an area for study, evaluation and monitoring (see Biodiversity and Old Growth).

3 Environment and Effects

The small portion of the medium OGR that is in the Vixen Inlet Till Lowlands would not affect the value of that ecological subsection to be represented in a potential future wilderness or LUD II recommendation. The majority of this ecological subsection lies outside the Emerald Bay project area.

Traditional Cultural Properties

No effects to any significant cultural resource sites from the proposed activities in the action alternatives are anticipated. The State Historic Preservation Officer (SHPO) has been consulted and concurs that no eligible sites would be affected by the proposed activities. Refer to the Heritage Resources section in this chapter for additional information.

Alternative A – No Action

No activities are proposed under Alternative A and there would be no effect on the Cleveland Roadless Area. Natural processes would continue to function and the roadless conditions remain as described above in the Affected Environment section. Implementation of this alternative would not change the wilderness eligibility of this area.

Alternative B

This alternative would harvest 601 acres of commercial forest land in eight harvest units through clearcut and single-tree selection. Two hundred eighteen acres of harvest would utilize a helicopter logging system. Approximately 6.2 miles of new road would access the units; 2.2 miles of this road would bisect the medium Old-growth Habitat Reserve.

Alternative B would affect the roadless characteristics of about 2,878 acres (1.5 percent) within the Cleveland Roadless Area. This portion of the roadless area would not exhibit unmodified, natural-appearing characteristics for the next 60 years. This acreage includes the non-helicopter and partial cutting units, a 600-foot “roaded zone” around the units, and a 1,200-foot “roaded zone” around the proposed roads. The single-tree selection units yarded with a helicopter are not included in this estimate since this harvest method leaves the treatment area mostly natural appearing after harvest is complete. This is consistent with the 2003 Forest Plan SEIS analysis approach.

Alternative C

This alternative would harvest 620 acres of commercial forest land in ten harvest units with group and single-tree selection. A helicopter-logging system would be used for all units and no road construction would take place.

Consistent with Appendix C of the 2003 Forest Plan SEIS, units harvested by beach logging and helicopter logging operations do not alter roadless characteristics since these units were determined to be mostly naturally appearing. Therefore, the areas treated by partial cutting using helicopter harvest system would retain their roadless characteristics. All of the units in this alternative would be partial cut using the helicopter harvest system. The entire area would retain its natural appearing, unmodified characteristics.

Alternative D

This alternative would harvest 620 acres of commercial forest land in ten harvest units. Approximately 3.8 miles of new road would access the units; 2.2 miles of this road would bisect the medium Old-growth Habitat Reserve.

Consistent with Appendix C of the 2003 Forest Plan SEIS, units harvested by beach logging and helicopter logging operations do not detract from the roadless area since these units were determined to be mostly naturally appearing. Therefore, the areas treated by partial cutting using helicopter harvest system would retain their roadless characteristics.

Alternative D would affect the roadless characteristics of about 1,128 acres (0.6 percent) within the Cleveland Roadless Area. This portion of the roadless area would not exhibit unmodified, natural-appearing characteristics for the next 60 years.

The 2.2-mile portion of the road and adjacent harvest areas would directly affect the roadless characteristics of 537 acres or 1.4 percent of the Old-growth Habitat Reserve LUD within the Cleveland Roadless Area (these acres are included in the 1,128 acres described above).

Cumulative Effects

Past or ongoing activities in the Cleveland Roadless Area include beach logging on the west side of the area, past mining, ongoing mining exploration, ongoing mine reclamation, and private timber harvesting at Helm Bay. The 2003 Forest Plan SEIS for Roadless Area Evaluation for Wilderness Recommendations determined that even though these activities have occurred, the area remains generally unaltered by human activity.

There are no currently planned or reasonably foreseeable timber activities in the Cleveland Roadless Area (Haley, P. pers. comm.). Timber harvest is foreseeable in the future in the Frosty (210) Roadless Area north of the Cleveland Roadless Area and the Emerald Bay project area. Discussions with the Wrangell Ranger District indicate that the activities (road construction and timber harvest) would not be close enough in terms buffer distances (over a half mile) to have an effect on the Cleveland Roadless Area.

The North Cleveland Roadless Area (#529) lies east of the Cleveland Roadless Area (Figure 3-7). The only activity proposed in this roadless area is the Swan-Tyee utility transmission line located on the eastern side of the roadless area. This project would not affect the Cleveland Roadless Area as this project is about 19 miles northeast of the Cleveland Roadless Area. Likewise, the proposed activities of the Emerald Bay project are about 5 miles to the west of the North Cleveland Roadless Area. Therefore, cumulative effects are not expected for soil, water, air, species diversity; habitat for threatened, endangered, proposed, candidate, and sensitive species, and for those species dependent on large, undisturbed areas of land; reference landscapes, natural appearance, traditional cultural properties and sacred sites, and human disturbance.

Activities proposed in the Emerald Bay project would not have a direct or cumulative effect on adjacent wilderness areas (Figure 3-7) due to the long distance between the project area and those wilderness areas. Wide expanses of water or many miles of rugged landscape separate these wilderness areas from the Emerald Bay project area.

Table Roadless-5
Comparison of Effects by Alternative

Alternative	Acres no longer roadless	Percent no longer roadless	Acres affecting OGR LUD from new road construction and clearcutting	Percent acres affecting OGR LUD from new road construction
A	0	0%	0	0%
B	2,878	1.5%	621	1.6%
C	0	0%	0	0%
D	1,128	0.6%	537	1.4%

Source: Forest Service GIS

Conclusion

Alternative B would result in 2,878 acres no longer having roadless characteristics due to road construction and implementation of the clearcut silvicultural treatment. In Alternative D, the road construction and timber harvest would detract from the roadless characteristics on 1,128 acres. Alternatives A and C would maintain the existing roadless characteristics within the Cleveland Inventoried Roadless Area.

Wilderness eligibility of the entire Cleveland Roadless Area may be re-evaluated during a future Tongass Forest planning effort. No changes in the current Wilderness Attribute Rating

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System (WARS) are anticipated because only a small portion of the area is affected along a short span of the western side of the Cleveland Peninsula.

Mitigation

No mitigation is identified.

Monitoring

No monitoring is identified.

Silviculture

The following discussions and analysis are based on a variety of sources including existing data, and data gathered during field visits in 1998 and 1999. Additional background on forest land classification, silvicultural and logging systems, and other related topics may be found in the Forest Plan FEIS, Chapter 3: "Timber" and Appendix G. Applicable direction is contained in the Forest Plan, Chapter 2, Chapter 3 (Timber Production Land Use Designation), Chapter 4 (Forest-wide Standards and Guidelines), and Appendix A.

Affected Environment

Forest Vegetation

The natural vegetation of the Emerald Bay project area is a mosaic of coniferous forest interspersed with alpine tundra, muskeg (bog), shrub land, estuarine, and beach-fringe plant communities. The area contains seven forested plant series, all of which are commonly found throughout southern Southeast Alaska: Sitka spruce, western hemlock and mountain hemlock series; western hemlock-yellow cedar and western hemlock-western redcedar series; and mixed conifer and shore pine series. The Biodiversity and Old Growth section of this chapter discusses aspects of old-growth forest not related to forest products. Various non-forested plant communities also occur in the project area, in estuaries, riparian areas, muskegs, alpine meadows, and alpine lichen rock outcrops.

Forest Land Classification

National Forest System lands are defined by vegetative cover, soil type, and administratively or congressionally designated land use. This classification scheme is intended to show the amount of land that is covered by forest vegetation with further divisions to show the amount of land capable of, or available for, timber production. Appendix A of the Forest Plan provides a detailed discussion of timber resource land suitability. To be considered both suitable and available for harvest, lands must be determined tentatively suitable for timber management, and must be within a land use designation that allows timber harvest. For the project area, this is the Timber Production land use designation (LUD). Forest Plan Standards and Guidelines apply within the Timber Production LUD and additional areas such as riparian management areas, wildlife nest or den buffers, are unavailable for timber harvest.

National Forest System lands within the project area total 7,845 acres (there is no non-National Forest System land within the project area). Of the 7,845 acres of forest land, 6,888 are classified as unsuitable and unavailable for timber management, either through land use designation (as Old-growth Habitat), standards and guidelines (riparian areas and the beach fringe), or soils or slope criteria. Currently this leaves 957 acres suitable and available for timber harvest. The alternatives in Emerald Bay project considered approximately 620 of the 957 acres.

To be considered suitable for timber management, forested lands must not only be within developmental LUDs, they also must be capable of producing 20 cubic feet of tree growth annually, and/or must contain at least 8,000 board feet of net timber volume per acre. These are termed "commercial forest lands" (CFL). In the Biodiversity and Old Growth, and Wildlife sections of this chapter, CFL is considered productive old growth; forest areas not capable of meeting these growth requirements are identified as unproductive old growth.

Stand Structure

The suitable and available acres can be stratified into three existing stand conditions based on tree basal area (BA), total volume, and tree species composition. Refer to Tables ST-1, ST-3, and ST-4. The stand conditions "A" and "B" are dominated by western redcedar and Alaska yellow-cedar, with a higher percentage of western redcedar than Alaska yellow-cedar. Stand condition "C" is dominated by western hemlock, with Alaska yellow-cedar more prevalent than

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western redcedar. All the units have an Alaskan blueberry and red huckleberry shrub layer. All the acres can be classified as a mosaic of two-age or multi-story old growth, with 15 to 25 large snags per acre.

Table ST-1
Unit Stratification Summary

Stand Condition	Basal Area Per Acre	Trees per Acre	DBH	Net MBF/Acre	Canopy Closure	Units ¹
A	228	94	21	16.3	30-70%	Group openings
B	305	124	21	32.2	50-70%	2, 5, 6, 9, 13
C	261	118	20	36.2	50-70%	1, 3, 10, 11, 12

¹ Alternative B does not include Unit 2 or 13

Source: Based upon combining and stratifying Emerald Bay Pre-cruise and Stand Exam Data (North, 2000)

Forest Disturbance

Stand Development

Presently all units are developing through a combination of not severe, but light to moderate wind, disease, stem decay and porcupine damage disturbance factors. Over time, the openings created by these disturbances had tree seedlings, shrubs, and forbs colonize them to initiate new layers. Because the disturbances were not consistent across the landscape or time, the units' structure became more complex. The major difference between each unit is the number of canopy layers and the type of vegetation in each.

Table ST-2
Existing Disturbance Factors

Disturbance	Unit									
	1	2	3	5	6	9	10	11	12	13
Alaska yellow-cedar decline	M		M	M	M	M	M	M	L	
Wind hazard	L	L-M	M-S	M	M	M	M	L	M	L-M
Stem decay	M	S				L				
Mistletoe	L					L	L	M		
Porcupine stem damage	S					L	L		M	S
Other physical damage		S		M		L				L-M

L = low or light M = moderate S = severe or high

Units with prescribed clearcuts – Alt. B only Units 1, 3, 9, 11, and 12

Forest Health

Alaska Yellow-cedar Decline

Alaska yellow-cedar decline is a disease causing considerable mortality in these units. There is a large amount of Alaska yellow-cedar decline occurring in the project area; 54 percent of the Alaska yellow-cedar trees are dead (USDA Forest Service 2001). Mortality has been both in small patches, or covering expansive areas.

Windthrow Hazard

Wind disturbance is the major disturbing influence shaping the south-aspect slopes within the project area. Most of the south-aspect stands have evidence of periodic windthrow events where openings were created. The windthrow hazard for the units is displayed in Table ST-2. A moderate rating means the unit has stand characteristics, such as multi-age trees growing in canopy gaps and multiple tops that indicate wind disturbance.

Stem Decay

There is evidence of decay fungi throughout the units, with noticeable amounts in Units 1 and 9. The ever-present populations of fungi have a very slow rate of spread, but play an important role in stand development.

Mistletoe

Dwarf mistletoe reduces the vigor and growth rate of hemlock and often produces low-quality timber (Ruth and Harris, 1979). Cankorous swellings often occur at the point of infection on limbs and main stems. These cankers offer an entrance for wood-destroying fungi, which can lead to heart rot. The occurrence of dwarf mistletoe is relatively light in the units, except in Unit 11, which has a moderate rating.

Porcupine Stem Damage

Porcupines are small mammals that may have significant impact on stand development. Porcupines damage stems by chewing through to the cambium, which allows an entry point for wood-decaying stem diseases. Stem decay weakens structural integrity, making trees prone to windthrow. Porcupine damage was documented in Units 1, 9, 10, and 12.

Other Physical Damage

Wind and ice can cause other tree damage. Trees with broken or forked tops and tattered branches are a good indicator of gale force winds and/or ice damage.

Past Harvest

There has been no past management in the Timber Production LUD. A small portion (approximately 14 acres) of the Old-growth Habitat Land Use Designation near the estuary was harvested approximately 60 to 80 years ago.

Environmental Consequences

Standards and guidelines found in the Forest Plan would result in the use of a wide range of silvicultural systems from traditional even-aged clearcuts to uneven-aged group and single-tree selections. Alternative B prescribes a mixture of clearcutting and uneven-aged management. Alternatives C and D are entirely uneven-aged management (single-tree and group selection). Spatial distribution of retained trees would vary between harvest units and alternatives depending on resource objectives, site conditions and logging systems. Proposed harvest units range from 7 acres to 208 acres in size. Harvest units can be a combination of clearcuts and uneven age treatments. No created openings exceed 100 acres. Clearcutting is the preferred harvest method in Units 1, 3, 9, 11, and 12 due to the cumulative existing disturbance factors causing mortality and volume losses that can be only reduced with this type of silvicultural treatment (Forest Plan p. 4-96). The remaining units also have similar cumulative disturbance factors causing mortality, but it was uneconomical to remove the lower-value trees with a helicopter and/or it was a calculated risk to leave trees to meet the visual objectives. Unit-specific silvicultural prescriptions are outlined in the unit cards and are located in individual stand folders that are part of the Emerald Bay project planning record.

Silvicultural Systems

The term "silvicultural system" refers to a planned process whereby a stand is harvested, re-established and tended. The system name is based on the number of age classes present after the initial harvest, such as even-aged, two-aged, and uneven-aged systems.

Even-aged systems produce stands that consist of trees of the same or nearly the same age. An even-aged stand can have up to 15 percent of the basal area in an older age group. Even-aged more closely mimics the natural conditions of the large-scale disturbance ecologies (for instance, areas subject to windthrow) found throughout Southeast Alaska.

There are two post-harvest even-aged stand structure types designed for Alternative B. The acres prescribed with even-aged system with no high-value marten habitat would have all trees greater than 9 inches diameter breast height (dbh) cut and removed from the unit. Where there

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is high-value marten habitat, 10 to 20 percent of the harvest unit acres would be reserved as scattered individual trees and/or clumps of trees. These areas of original stand structure would include an average four trees/acre, three snags per acre, and an average three pieces of downed logs/acre, all of which must be greater than 20 inches in diameter.

Uneven-aged systems create stands that include three or more distinctly different age classes. Uneven-aged conditions are created through management by using single-tree or group-selection methods. Uneven-aged systems more closely mimic the gap-dominated old-growth ecosystems (where large-scale disturbance is not a major factor) found throughout Southeast Alaska.

There is one uneven-aged single-tree prescription. For Alternatives B, C and D, leave all trees less than 15 inches dbh, all trees between 25 and 33 inches, and all trees greater than 45 inches. About 50 percent of the basal area would be removed on first entry, followed by a 25 percent removal entry every 50 years. Where there are high-value marten habitat acres, 10 to-20 percent of the harvest unit must include among the residuals on the average four trees/acre, three snags per acre, and an average three pieces of downed logs/acre, all of which must be greater than 20 inches in diameter. Additional trees may be required in the harvested windfirm buffers to insure wind protection to the unharvested stream and windfirm buffers.

The other uneven-age system is a group-selection prescription. The stand condition "A" areas were identified in Table ST-1 and approximately one third of the area was designated to be made into 1- to 2-acre openings every 50 years. The group opening designed for Alternatives C and D's post-harvest conditions are equivalent to the clearcut prescription.

For a detailed discussion of silvicultural systems and methods, see the Forest Plan FEIS, Appendix G. Factors influencing and criteria for selection of appropriate harvest methods and silvicultural systems are also presented in the National Forest Management Act implementing regulations (36 CFR 219.27) and the Forest Service Manual.

Direct and Indirect Effects of the Alternatives

Alternative A would have no change to the existing old-growth structure.

Alternative B harvests 396 acres with a clearcut prescription. Approximately 194 acres are considered high-value marten habitat. The Marten Standards and Guidelines would be followed and leave 10 to 20 percent of the stand, totaling 29 acres of trees.

Alternative B (205 acres), Alternative C (561 acres), and Alternative D (561 acres) use the same uneven-aged, single-tree selection prescription. The remaining overstory would have highly variable tree densities, due to the prescription based upon tree diameter groups and the highly variable existing conditions. The remaining crown canopies are estimated to range from 5 to 50 percent, with most trees remaining as individuals or small clumps. Very irregular openings would be created. These under-stocked areas are predicted to range from 1 to 25 acres - over 33 percent of the area. The prescription would leave trees from three distinct diameter groups. The trees less than 15 inches dbh would have suppressed, poorly developed and lopsided crowns because they were part of the lower canopy layers of the existing condition. The leave trees between 25 and 33 inches dbh should have slightly healthier crowns because they were generally the co-dominants of the previous conditions. There would be at least one large dominant tree greater than 45 inches in diameter left per acre and it could be any existing tree species.

Alternatives B and C would also harvest 59 acres with group openings (stand condition A). The only trees remaining in these small openings would be residual trees less than 9 inches dbh, that survive the falling and yarding of the larger trees and any individual trees left to meet the Marten Standards and Guidelines.

In Alternatives B, C, and D, the live shrubs and forbs remaining would be the ones that survive the falling and yarding of the larger trees. The residual branches, stems and cull log sections would form a continuous layer of wood debris, from 1 inch to 3 feet deep. The falling and

yarding would scarify portions of the soil and duff layers and prepare the area for natural regeneration. The helicopter logging would cause less scarification, but should have no effect on the natural regeneration success.

The existing and post-treatment stand composition for stand conditions "B" and "C" for single-tree selection areas are displayed in Table ST-3 and Table ST-4. Table ST-5 displays post-treatment silvicultural system composition, stocking, and diameter. All tree species are reduced in stocking. Of the four tree species, western hemlock trees contribute the greatest volume. The two types of cedars and the Sitka spruce increased in their post-harvest percent composition. There is a slight increase in the post-harvest average tree diameter of the remaining merchantable trees. The stands would remain classified as multi-layer or two-age stands.

Table ST-3
Post-treatment Stand Attributes by Species Existing for Stand Condition "B" Units for the Single-tree Selection Areas

Attribute	Western Hemlock		Western Redcedar		Alaska Yellow-cedar		Sitka Spruce	
	Existing	Post Harvest	Existing	Post Harvest	Existing	Post Harvest	Existing	Post Harvest
Percent Composition ¹	31	15	36	43	23	31	10	11
Trees per acre	62	32	42	21	16	6	3	2
BA (ft ² /acre)	93	30	137	78	60	30	15	7
Average Diameter (in)	17	13	24	26	26	30	30	25
Net MBF/acre	10.0	2.1	11.5	6.1	7.5	4.5	3.2	1.6

¹ Based upon merchantable volume

Source: Based upon combining and stratifying Emerald Bay Pre-cruise and Stand Exam Data (North, 2000)

Table ST-4
Post-treatment Stand Attributes by Species Existing for Stand Condition "C" Units for the Single-tree Selection Areas

Attribute	Western Hemlock		Western Redcedar		Alaska Yellow-cedar		Sitka Spruce	
	Existing	Post Harvest	Existing	Post Harvest	Existing	Post Harvest	Existing	Post Harvest
Percent Composition ¹	51	42	7	9	27	31	15	18
Trees per acre	73	45	13	6	30	15	3	2
BA (ft ² /acre)	136	54	31	15	73	34	21	10
Average Diameter (in)	18	15	21	21	21	20	36	30
Net MBF/acre	18.4	12.3	2.7	1.4	9.7	5.4	5.4	2.9

¹ Based upon merchantable volume

Source: Based upon combining and stratifying Emerald Bay Pre-cruise and Stand Exam Data (North, 2000)

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Table ST-5
Average Post-treatment Stand Age, Stocking, and Average Diameter

Alternative	Acres	BA/Acre	TPA	DBH	Net MBF/Acre	Canopy Closure
Alt. A	620	268	119	20	35.6	50-70%
Alt. B even aged	396	~5	1	0	0	0-5%
Alt. B ¹	205	146	52	23	20.1	5-50%
Alt. C, or D uneven aged ¹	561	146	52	23	20.1	5-50%
Alt. C or D group openings	59	~5	1	0	0	0-5%

Source: USFS, Emerald Bay Stand Tables by Stand Condition, 2001

¹ Based upon combining and stratifying Emerald Bay Pre-cruise and Stand Exam Data (North, 2000)

Stand Development

Alternative A's disturbance pattern would continue causing mortality in the overstory and initiating new trees and shrubs in the understory. Only a major future disturbance would alter the structure to a more even-aged stand structure.

The clearcuts in Alternative B, the group opening in Alternatives C and D, and all the irregular shape openings in all the uneven-aged areas would develop a uniform tree and shrub layer through advanced conifer regeneration plus natural seeding and sprouting of shrubs. All of these opening are expected to be restocked with trees within 5 years, as required by National Forest Management Act regulations (36 CFR 219.27(c)). Stands with comparable site conditions have received similar silvicultural treatment, which resulted in full stocking within 5 years of harvest. Regeneration (stocking) monitoring would be conducted on harvest units, in all of the action alternatives to verify tree development. In 15 to 20 years, the vigorous growing trees would overtop the shrub layer and begin to shade it out. The trees would form a closed overhead canopy that excludes most shrubs and forbs for 80 to 100 years.

The uneven-aged acres would also regenerate a new layer of trees and shrubs. This new layer would never be as uniform as the trees and shrubs of the larger openings. Their crowns and growth would be reduced due to overstory competition and disturbances associated with the overstory (such as windthrow) causing gaps in the new canopy layer. Alternatives utilizing uneven-aged management prescriptions would follow successional pathways similar to gap-dominated old-growth forests.

Alaska Yellow-cedar Decline

In Alternative A, Alaska yellow-cedar decline would continue to cause mortality in the remaining yellow-cedar. The existing merchantable dead volume (1,388 MBF) would not be salvaged. Affected trees may die within 2-3 years, or over a 15-year period or longer, with crowns progressively thinning.

The cause of Alaska yellow-cedar decline is not completely understood, but the disease is generally associated with boggy conditions near muskegs. The primary cause of mortality is unknown, and no single factor has been shown to be primarily responsible for tree death (Hennon et al, 1990). Two hypotheses have been proposed for yellow-cedar decline. (1) Toxins are produced by decomposition in wet, organic soils, or through cation mobilization, or; (2) The lack of snow pack at lower elevations allows solar radiation to penetrate the open-canopy forests and trigger early loss of cold tolerance in cedars, predisposing these trees to suffer some form of freezing injury. On-going research and circumstance evidences favor the second hypothesis. Yellow-cedar forest appears healthy at higher elevations and on northerly aspects that favor patterns of snow persistence in spring.

The ecological effect of yellow-cedar decline is to alter stand composition (i.e. yellow-cedar diminishing and other tree species becoming more numerous) that leads to eventual succession favoring other conifer species such as western hemlock, mountain hemlock and western

redcedar in areas south of latitude 57 (Forest Health Conditions in Alaska-2004, R10-PR3, March 2005)

In Alternatives B, C, and D, the existing merchantable dead trees would be salvaged. Cedar decline would continue in the remaining Alaska yellow-cedar. Conversion of these sites to managed stands through harvest would schedule post-harvest cultural treatments, which can target species other than Alaska yellow-cedar and allow site potential to be more efficiently utilized. Future management of the uneven-aged stand would salvage the Alaska yellow-cedar affected by mortality.

Windthrow Hazard

In Alternative A, the wind would continue to create small gaps and openings in all the units and cause damage to the tree crowns.

The openings created by removing the trees in Alternatives B, C, and D would prevent the wind from damaging the new trees for at least 30 years. Removing greater than 30 percent of the basal area and leaving the trees with poor crown development in Alternatives B, C, and D's uneven-aged treatments would increase their risk to wind damage (A.S. Harris 1989). The edges of the residual stands would be more susceptible to wind damage. The units proposed for harvest are oriented perpendicular to the direction of the dominant winds to minimize wind exposure and windthrow of the remaining trees.

Stem Decay

In Alternative A, the existing stem decay would continue, causing loss of present and future volume.

Removing the trees with stem decay in Alternatives B, C, and D would prevent the further loss of volume in those trees. In the uneven-age treatment areas, the stem decay would continue because the criteria for removal is not based upon targeting trees with stem decay.

Mistletoe

In Alternative A, the existing mistletoe would continue causing loss of present and future volume.

Removing the trees with mistletoe in Alternatives B, C, and D would prevent the further loss of volume in those trees and slow the spread to the new trees. In the uneven-aged treatment areas, mistletoe would continue to cause volume loss and spread to the new trees because the criteria for removal is not based upon targeting trees with mistletoe.

Porcupine Stem Damage

In Alternative A, the deterioration of existing trees with porcupine stem damage would continue causing loss of present and future volume.

Removing the trees with porcupine stem damage in Alternative B, C, and D would prevent the further loss of volume. In the uneven-age treatment areas, the porcupine stem damage would be reduced, but continue to cause volume loss because the criteria for removal is not based upon targeting trees with porcupine damage.

Other Physical Damage

In Alternative A, the existing trees with other physical damage would continue causing loss of present and future volume. No logging would occur in Alternative A.

Removing the trees with other physical damage in Alternatives B, C, and D would prevent the further loss of volume. In the uneven-aged treatment areas, the other physical damage would continue to cause volume loss because the criteria for removal is not based upon targeting trees with other physical damage. Single-tree selection would likely result in some logging damage to residual trees. The thin bark and shallow roots of hemlock and spruce make them particularly susceptible to logging injury, which leads to decay especially in hemlock (Burns 1983). Decay reduces timber productivity. Alternative B has the least single-tree selection and

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would result in less damage to residual timber. Alternatives C and D have the same amount of single-tree selection and would result in similar amounts of damage to residual timber. It should not exceed 10 percent because of contract administration and monitoring.

The building and closing of the LTF and road system in Alternatives B and D would create a 55-foot wide opening of approximately 45 and 28 acres, respectively. The remaining substrate productivity would be considerably less than if left undisturbed, as in Alternative C. Past monitoring of similar scenarios predicts most of these acres would be quickly occupied by grasses seeded for erosion control followed by dense alder regeneration. Over the next 50 years, conifers would slowly replace the alder canopy as it is broken apart by natural disturbances.

Long-term Timber Productivity (Yield)

All stands proposed for harvest are overmature and well beyond the age of maximum average annual growth of the stand. Most are representative of uneven-aged western hemlock stands that commonly take hundreds of years to develop under natural conditions. Harvest increases forest floor temperatures, speeding up organic decomposition and increasing the supply of available nutrients to the trees. The effects of Alternatives C and D on long-term yield would be the conversion of unmanaged, slow-growing, overmature stands to regulated, multi-aged stands. Immediate change would be less than in Alternative B; however, over the course of several cutting cycles this difference would begin to level out.

The open conditions created by even-aged systems applied in Alternative B allow for more-rapid regeneration. With the use of precommercial thinning, an increase in the spruce and cedar components can be attained in an attempt to restore the original stand composition. Immediate effect on long-term productivity and yield is expected to be greatest in this alternative.

Cumulative Effects

The silvicultural cumulative effect analysis area is the Emerald Bay project area. The assumption for this analysis area is only local disturbances or vegetation changes can influence the silvicultural management of this or other areas. For example, to alter the spread of dwarf mistletoe, all infected trees would have to be removed or killed within or adjacent to the units. The analysis area was limited to the project area because the nearest future activity is the Sunny Bay Timber Sale, planned for 2011, which is located north of Emerald Bay separated by a high ridge and a different watershed. There are no cumulative effects, because the two timber sales units are not in the same vicinity. They would not influence the local disturbance patterns of each other. There will be no large clearcuts which would accelerate the wind speeds and create wind disturbances beyond the localized area.

Mitigation

No project-specific mitigation is identified.

Monitoring

Post-harvest activities applied to Alternatives B, C and D would include regeneration surveys as well as evaluation of residual stands following harvest.

Timber Economics

Employment in Southeast Alaska

Approximately 80 percent of Southeast Alaska is within the Tongass National Forest, which extends 500 miles from Ketchikan in the southeast to Yakutat in the northwest. With little private land available, the region is sparsely settled. Approximately 74,000 people live in 33 towns and villages located in and around the Forest. The communities of Southeast Alaska depend on the Tongass National Forest to provide the foundation for natural resource-based industries, which include wood products, commercial fishing and fish processing, recreation, tourism, mining, and mineral development. Many residents also depend heavily on subsistence hunting and fishing to meet their basic needs. There is very little private land in the region to provide these resources. Appropriate management of the Tongass' natural resources is, therefore, extremely important for local communities and the overall regional economy.

Employment in the Project Area Vicinity

Survey information shows the principal users of the Emerald Bay project area are from the Meyers Chuck community with potential additional use coming from Wrangell, Ketchikan, and Thorne Bay (Forest Plan FEIS, pp. 3-529 to 3-680). Community use of the area for recreation, hunting, or subsistence is discussed in the Recreation, Scenery, and Subsistence sections of this chapter.

Community and area employment information, based primarily on statistics from the State of Alaska Dept of Labor, is disclosed in the Forest Plan SEIS (2003). Sub-regional information for all Prince of Wales Island and outer Ketchikan communities, which includes the Cleveland Peninsula, shows that in 2000 there were 281 (15.1 percent of all jobs) wood-product related jobs. While this is the highest ratio of logging-related jobs to all jobs in Southeast Alaska, it still represents a 59.9 percent decline in the previous 10 years. Lodging and recreation-related employment for this sub-region accounted for an estimated 226 jobs, or 12.1 percent of all jobs (Forest Plan SEIS page 3-312, Table 3.4-30), which is a 57.2 percent increase in this sector over the same 10 years. It should be noted, however, that per capita income declined by 12 percent from 1990 to 2000, and that on average, residents of the Prince of Wales-Outer Ketchikan area receive 33 percent less income than the regional average (Forest Plan SEIS page 3-314).

The Meyers Chuck economy is primarily based on commercial fishing with five residents holding commercial fishing licenses. The median household income in Meyers Chuck is the highest of all Southeast communities analyzed: \$64,375 compared to a regional median of \$44,118 (Alaska DCED 2002, as displayed on p. 3-389 of the Forest Plan SEIS).

Regional Trends and Local Conditions

The forest products industry has been an important part of the economy of Southeast Alaska since the 1950s. Recent forest products employment data are presented in Table TE-1. From 1991 through 2000, the forest products industry provided direct employment for an average of 1,972 workers. Direct employment during this period peaked in 1991 with 3,069 jobs, and has steadily declined since then (Table TE-1).

Employment has dropped recently, primarily due to lower market conditions and the closure of the pulp mill in Ketchikan in 1997. With that closure, employment in the forest products industry has been reduced by approximately 558 jobs. In 2001, total wood products employment in Southeast Alaska was approximately 782 jobs (Forest Plan SEIS, 2003, page 3-246).

Timber-related Employment

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Table TE-1
Forest Products Industry Employment in Southeast Alaska 1991 to 2000

Employment Type	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Logging	1,554	1,415	1,344	1,177	1,185	1,157	1,049	889	824	711
Saw Mill	604	538	447	515	301	230	184	284	303	280
Pulp Mill	911	910	859	533	516	524	318	96	63	2
Total Direct	3,069	2,863	2,650	2,225	2,002	1,911	1,551	1,269	1,190	993

Source: Forest Plan SEIS, 2003, Table 3.4-18, page 3-289

Further decline of employment in the forest products industry occurred with closure of the Gateway Forest Products veneer mill in Ketchikan. The veneer mill is designed to process the smaller-diameter logs. On July 16, 2002, the Ketchikan Gateway Borough (Borough) purchased the facility following the bankruptcy of Gateway Forest Products. The Borough intends to work with the Alaska Industrial Development and Export Authority (AIDEA) to operate the mill or to find a potential buyer. Currently, the Borough is reviewing proposals from prospective operators of the veneer mill. A subsequent increase in employment would occur should the mill become operational in the near future. The level of employment for the mill would depend on the processing capacity and available timber supply.

Non-timber Employment

Regional Trends

The following discussion is summarized from the *Tongass Land Management Plan Revision Final Supplemental EIS—Roadless Area Evaluation for Wilderness Recommendations (2003)*, Chapter 3, Economic and Social Environment.

Recreation and tourism within Southeast Alaska has increased significantly since 1990, primarily in non-Alaskan resident recreation use. Surveys indicate that these visitors, a majority of which are cruise ship passengers, are generally older, often purchase package tours, use many expensive services, and spend relatively little time in remote settings. Recreation and tourism-based employment is expected to increase by 17 percent in 10 years, with most of this growth due to projected change in non-Tongass, nonresident, recreation-related employment. However, annual cruise ship data for 2000 suggest that these visitors accounted for at least 60 percent of the total visitation to the Tongass National Forest in 2001. Cruise ship companies have heavily marketed Forest-related activities in recent years, and many passengers take at least one trip to the Forest (for example, flightseeing tours to Misty Fiords). Recreational use data for the Tongass National Forest collected between 1984 and 1995 found that semi-primitive motorized recreation demand currently exceeds supply at identified recreation places, but not across the entire Forest. (See the Recreation section in this chapter for an explanation of "recreation places.") By contrast, roadless areas and wilderness were underutilized and were expected to remain so into the future.

There is not expected to be any significant change to commercial fishing or fish processing industries over the next decade as a result of these proposed activities. Much of the future of the fishing industry in Southeast Alaska will be dependent upon occurrences outside of the Tongass National Forest such as offshore harvest levels, changes in ocean currents, competition from farmed fish, and changes in the market for and consumption of fish. In addition, a large segment of the commercial fishing industry operates under a limited entry harvest system, and the number of permit holders is stable from year to year.

Timber Supply and Market Demand

Recent Changes Affecting Market Demand for Domestic Timber

Until recent years, the timber industry in Southeast Alaska has made few changes in the way they manufacture logs. The strong Asian market in the 1980s – 1990s required only that the logs be manufactured to a flitch or a cant in order to obtain the highest value. Since then, the market for Alaska timber in Japan has declined. Japanese housing starts dropped substantially,

especially for the traditional-style homes that utilized much of Alaska's spruce, hemlock and yellow-cedar in the past. At the same time, Western styles and culture became increasingly popular with younger Japanese homebuyers and traditional post-and-beam style home sales were replaced with the more affordable stick frame-constructed homes typical in the U.S.

As a result, mill owners in Southeast Alaska began to find new markets in the U.S. for hemlock and western redcedar. As recently as January 2004, sawmills began to improve their infrastructure to efficiently produce new products in a near-finished form in order to capture more value. These improvements include installing dry kilns and planers to produce high-quality finished lumber products. The Ketchikan Wood Technology center in Ketchikan, Alaska, tested Sitka spruce, western hemlock, and Alaska yellow-cedar to develop grade stamps for certification. "Alaska yellow-cedar", "Alaska Sitka spruce" and "Alaska hemlock" were recently approved for certification as grade lumber stamps. These grade stamps will differentiate Alaska-grown and manufactured forest products with superior qualities from other wood products produced in the western United States and Canada.

Environmental Consequences

Direct and Indirect Effects of the Alternatives

Employment and Income

Effects related to community uses of the area are discussed in other sections of this chapter, as noted above. The Proposed Action would include direct and indirect impacts to the economy. To estimate the amount of employment and income likely to result from timber harvest alternatives, a simple conversion of board feet to jobs and income is made, using multipliers developed for Southeast Alaska (Forest Plan FEIS, p. 3-480). Table TE-2, below, shows the employment and income estimates for each alternative. These figures represent the number of job-years in logging, construction, marine transport, and sawmills directly related to each alternative. The sawmill component is for milling of the spruce, hemlock, and western redcedar volume. Alaska yellow-cedar volume is not included because it is usually exported. As would be expected, the higher the harvest, the more jobs and income that result.

Table TE-2
Logging-related Employment and Income by Alternative

	Alt. A	Alt. B	Alt. C	Alt. D
Employment (# job-years)	0	86	64 ¹	65 ¹
Income (million \$)	0	3.85	2.86 ¹	2.91 ¹

¹Number of job-years and associated income if market conditions improve sufficiently to make the alternatives economically viable.

Source: Forest Plan FEIS, p. 3-480

Payments to the State of Alaska

In October 2000, the *Secure Rural Schools and Community Self Determination Act of 2000* (commonly referred to as "Payments to States" legislation) was enacted to stabilize Federal payments to states in response to declining Federal receipts. Prior to 2000, in states with national forests, 25 percent of the returns to the U.S. Treasury from revenue-producing Forest Service activities such as timber sales, were returned to each state for distribution back to counties (or in Alaska, boroughs) having acreage within a national forest. Those payments were called the 25 percent fund payments and were dedicated by law to roads and schools.

Under the legislation for fiscal years 2001 through 2006, affected Alaska boroughs and communities have elected to receive a full payment amount rather than 25 percent of receipts. The full payment amount is the average of highest three payments made to the State during the 14-year period between 1986 and 1999. These annual full payment amounts are primarily

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Timber Financial Efficiency Analysis

dedicated to roads and schools, with provisions for special project funding under certain conditions. Under the full payment approach, Forest Service payments to the State of Alaska from 2001 to 2006 period would not be linked to annual Forest Service revenue; rather, they would be based on the high 3-year historic average. The difference in revenues among the alternatives considered in this EIS would therefore have no effect on the payments Alaska boroughs and communities receive during the 2001 through 2006 period.

Current Forest Service Handbook direction (FSH 2409.18) requires a financial efficiency analysis to compare benefits and costs of a project. Revenue values used in the analysis reflect current timber value estimates using standard timber (transactional evidence) appraisal procedures. For this analysis, the current market is defined as the market conditions for the 1st quarter of 2004. This is the latest information as of May 2005. The financial efficiency analysis compares expected gross revenues against estimated costs and arrives at an estimate of net revenues or stumpage values.

Table TE-3 displays the major timber sale financial components for each action alternative on a per-CCF basis at current market conditions. "Total harvest volume" includes total volume (sawlog and utility or cull) expected to be available under each alternative. The "Transportation costs" component includes "stump-to-truck" logging costs, such as felling, bucking, yarding, loading, and related costs such as haul, log transfer and tow, as well as administration, and profit and risk. "Construction costs" include all capital investments for the Emerald Bay project such as pit development, road construction, bridges and post project remediation. "Average cost/CCF" displays the total cost for each alternative (Transportation plus Construction). "Net revenue" displays the net revenue (also referred to as net stumpage) for each alternative after costs are subtracted from gross value.

Table TE-3
Timber Values and Costs by Alternative for Current¹ Market Conditions

	Alt. A	Alt. B	Alt. C	Alt. D
Total harvest volume (CCF)	0	32,749	24,359	24,783
Transportation costs (million \$)	0	4.75	9.81	5.45
Construction costs (million \$)	0	0.80	0	0.53
Average cost/CCF (\$)	0	168.84	403.08	241.46
Net revenue (stumpage) at current market (\$/CCF)	0	5.01	-207.43	-78.41

¹NEAT 1Q2004

Source: Forest Service, M.North 2004

The average cost/CCF measure can be used to compare the overall financial efficiency of the alternatives. The average cost is highest per CCF in Alternative C, which proposes to use long-distance helicopter yarding to eliminate road and LTF construction. The most efficient average cost per CCF is Alternative B. This alternative emphasizes clearcut harvest, cable-yarding systems associated with a road system, and less helicopter logging, which is more costly than cable logging.

Logging Systems

Yarding is the process of transporting logs from the stump to the landing. This can be done using ground-based equipment, cable-logging systems, or helicopters. The method prescribed depends on many factors, including access, topography, slope, and resource protection needs.

Logging systems were assigned to the harvest units through interdisciplinary analysis to minimize the potential effects. On-site ground reconnaissance and field evaluations during the planning and layout process would ensure the yarding system assigned provides the required suspension to meet management objectives. Table 2-1 in Chapter 2 displays the logging

systems planned for each alternative. Table TE-4 displays harvest acres by logging system for each alternative.

Shovel Yarding

Moist, soft soil conditions in conjunction with steep slopes found in the project area limit the use of ground-based equipment. One to two percent of the proposed harvest acres could be shovel yarded with track-mounted log loaders. Road rights-of-way are particularly suitable for shovel yarding. Shovel yarding is generally the most economical yarding method, although its use is limited in Southeast Alaska due to prohibitive field conditions, including its potential for ground disturbance.

Cable Yarding

Cable-yarding systems are the most common logging systems used in Southeast Alaska. Cable systems can partially or fully suspend logs over the ground, reducing soil disturbance.

Helicopter Yarding

With helicopter yarding, logs are fully suspended and flown to a landing or barge. This yarding system causes the least amount of ground disturbance and usually has the highest yarding cost, as much as three times higher than cable-logging systems. Consequently, the economic feasibility of helicopter logging is more affected by timber market values than the other types.

Table TE-4
Comparison of Alternatives – Harvest System and Roads

Category	Unit of Measure	Alt. A	Alt. B	Alt. C	Alt. D
Harvest system					
Cable	acre	0	374	0	0
Helicopter	acre	0	218	620	609
Shovel	acre	0	9	0	11
Roads					
New classified	mile	0	5.8	0	3.8
New temporary	mile	0	0.4	0	0
LTF construction	#	0	1	0	1

Source: M. North

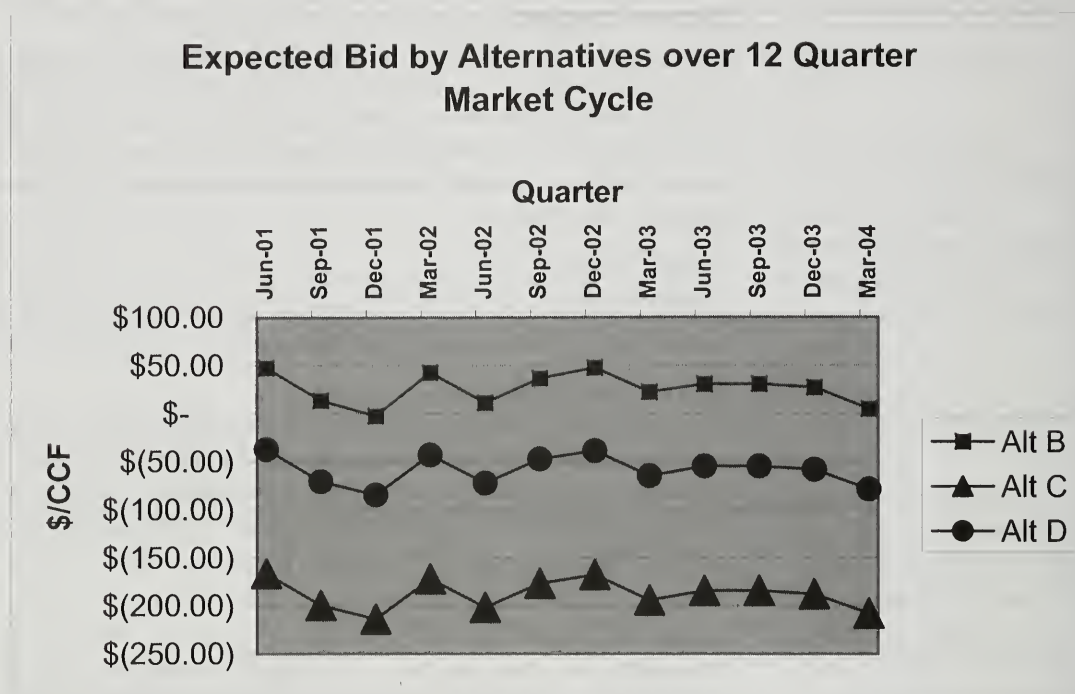
Alternative D reduces the long helicopter flight distances associated with Alternative C by 4 miles due to constructing a haul road and land-to-barge LTF. This haul road is responsible for the increased financial efficiency.

The projected stumpage values are also useful for comparing the alternatives. Positive stumpage values generally indicate financial viability. Alternatives C and D have negative values for the current market condition. Alternative B is the most economical alternative. This can be attributed to road development and reliance on cable-logging systems. The economic viability becomes negative with Alternatives C and D, which rely on less road and increased helicopter yarding.

The NEPA Economic Analysis Tool (NEAT) predicts the expected bid value for each alternative's mix of species and logging systems, using Region 10's Transactional Evidence Appraisal Data. Predicted bid values are displayed in Figure 3-8. The model indicates that Alternative B has a positive value of \$5.01/CCF in the 1st quarter of 2004, and a positive value for 11 of the 12 quarters in the analysis period. There is a reasonable chance of selling the sale and operating the sale. Alternatives C and D are not economical under current market conditions.

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Figure 3-8
Expected Bid by Alternative



Source: Forest Service, NEAT, M.North, 2005

One measure of the financial efficiency for a project is the comparison of the project revenues to the project cost. The costs include planning, sale preparation, engineering support, and sale administration. Table TE-5 displays the revenues and cost of each alternative.

Table TE-5
Comparison of Alternatives – Project Revenues and Costs

	Alternative A	Alternative B	Alternative C	Alternative D
Total volume (CCF)	0	32,749	24,359	24,783
Revenues \$/CCF	\$0.00	\$5.01	\$4.40 ²	\$4.41 ²
Total revenues	0.00	\$164,144	\$107,179	\$109,293
Total costs ¹	\$671,288	\$1,653,661	\$1,230,115	1,251,526
Net	-\$671,288	-1,489,517	-\$1,122,936	-\$1,142,232
Net cost per CCF	N/A	\$45.48	46.09	46.08

¹ NEAT 1Q2004 All costs are based on average Region 10 costs.

² Average weighted base rate

Public Investment Analysis

Public investment analysis of each alternative compares the value of the timber with the cost of preparing the timber sale. The average Region 10 Budget Allocation costs and management expenses are subtracted from the net stumpage (revenue) to determine net value to the public. The costs and management expenses include environmental analysis, sale preparation, sale administration, and engineering support.

Environmental Analysis

Environmental analysis costs include field inventory and the analysis of data, public involvement, and the preparation of a document that satisfies the requirements of the National Environmental Policy Act. The timeframe is at least 2 years and involves many resource specialists. Although it is based on timber volume, the cost fluctuates more with the amount of area to be examined and the accessibility of the area. The unit pool for the Emerald Bay project area is only accessible by helicopter. Alternative access is by at least 2 miles of foot travel over rough terrain from the beach after arriving by boat or floatplane. Because of the costly and limited access, the analysis is greater than the average costs. The environmental analysis cost is constant and applies to all alternatives, including the No-action Alternative.

Sale Preparation

Unit layout and cruising costs increase significantly for partial-harvest silvicultural prescriptions compared to clearcutting. The Alternatives-to-Clearcutting Research Study on the Kupreanof Island required about eight times more person-days to prepare a unit that involved marking individual trees throughout the unit compared to a clearcutting. Accessibility to the units is another major cost factor. The same expensive access that was required for the environmental analysis will be needed for sale preparation costs.

Using these cost factors, Alternative B would be the least costly to prepare because 2/3 of the harvest area is clearcut. Alternatives C and D would be more costly than B due to the costs associated with marking and cruising the selection prescriptions. Alternatives C and D have comparable costs, however Alternative D would have additional costs for road layout. All costs would be higher than the average Region 10 costs.

Sale Administration

Sale administration costs are higher when helicopter logging is involved because of the increased cost of accessing the harvest area for administration. Because of the higher sale administration costs for helicopter yarding, Alternative C would have higher costs than other action alternatives. Alternative D would be the next most costly. Alternative B costs would be the least costly but still higher than the average Region 10 costs.

Non-timber Harvest Values

The Forest Service is not required to quantify the non-market benefits and costs associated with timber sales. However, the Forest Service is required to insure that all environmental amenities and values are given appropriate consideration in decision making along with economic and technical considerations. This Final SEIS analyzes the potential effects of the project on environmental amenities and values such as water resources, roadless quality, recreation and scenery, wildlife, subsistence, and social concerns. There are little or no expected effects on resources such as hunting, fishing, recreation, or tourism.

Energy Requirements and Conservation Potential of the Alternatives

The implementation of the proposed alternatives would require the expenditure of energy (consumption of fuel). The amount of energy used varies by alternative, based on the timber volume harvested, the type of harvest system used, the amount of road constructed, and sale preparation and administration.

Fuel consumption requirements were estimated as follows:

Timber Sale Preparation and Administration	1.56 gallons per MBF
Cable/Shovel Logging	2 gallons per MBF
Helicopter Logging + 75 percent for each distance category	8 gallons per MBF
Load, Haul, Raft, and Tow	8 gallons per MBF
Road Construction	4,000 gallons per mile
Road Maintenance	20 gallons per mile

Other Resource Values

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The estimated fuel consumption required for each alternative is displayed in Table SE-3.

Table TE-6
Estimated Fuel Consumption (Thousands of Gallons) by Alternative

Activity	Alt. A	Alt. B	Alt. C	Alt. D
Cable/Shovel Logging	0	21.2	0	0.4
Helicopter Logging	0	46.2	319.1	97.4
Load, Haul, Raft, Tow	0	131.0	24.4	99.1
Road Construction	0	24.8	0	15.0
Road Maintenance	0	0.1	0	0.1
Sale Prep/Administration	0	25.5	19.0	19.3
Total Consumption	0	248.8	362.5	231.3
Average Gallons/MBF	0	7.6	31.4	10.9

Source: Forest Service, M. North

Cumulative Effects

In order to look at the cumulative effects for timber economics, the timber program on the Tongass National Forest needs to be considered. The timber harvest for the Emerald Bay project area analysis is estimated to be completed within 5 years, although the length of timber sale contract may be shorter or longer. During that time, other timber sales are expected to be active across the Tongass and contribute to the timber supply. Appendix A explains the cumulative effects of the timber sale plan. If this project is not completed, volume from other areas may need to be offered or the demand for the installed mill capacity would not be met.

Mitigation

No project-specific mitigation is identified.

Monitoring

No monitoring is identified.

Soils and Geology

The following discussions and analysis are based on pre-existing data combined with additional data collected in the field for the Emerald Bay project and is confined to the project area and proposed units. This report is divided into two sections, 1) soil productivity, and 2) surface erosion and mass movement. A Forest-wide treatment of soils may be found in the Forest Plan FEIS, Chapter 3. Applicable soils direction is included in the Forest Plan, Chapter 4 and Appendix C. General and site-specific mitigation measures are listed in the road and unit cards.

Affected Environment

Uplift and valley glaciations have shaped much of the Emerald Bay project area landscape. Rock types are mostly of granitic or sedimentary origin.

The soils of the Emerald Bay project area are predominantly underlain by till at elevations less than about 1,000 feet. The upper limit of glacial till on the valley sides of the Emerald Bay watershed is about 1,200 feet. The thickness of the till deposits is extremely variable. As elevations increase and slopes increase, soils are typically less than 20 inches thick and underlain by bedrock. On the broad, gently sloping ridge tops, organic soils have accumulated, typically to depths of more than 2 feet.

Geomorphology and Geology

The Emerald Bay project area topography and landforms are characterized by a small U-shaped valley and broad ridges trending southwest, with a steep ridge running northwest and dropping directly into Ernest Sound. Soils are dominantly well drained and productive on the valley side slopes supporting hemlock/spruce forests. The broad ridge tops and the valley bottoms are covered with a combination of organic soils supporting bog vegetation and well-drained hemlock/spruce forests.

Karst Resources

Karst is a comprehensive term that applies to the unique topography, surface and subsurface drainage systems, and landforms that develop by the action of water on soluble rock - in the case of Southeast Alaska, limestone and marble. The dissolution of the rock results in the development of internal drainage, producing sinking streams, closed depressions, and other solution landforms such as sinkholes, collapse channels and caves (White et al. 1995). The Emerald Bay project area has no known karst features.

Soil Productivity

Soil productivity in the project area is primarily a function of soil drainage, soil depth, parent material, and climate. Only soil drainage and soil depth may be impacted by the project. The Forest Plan identified three soil productivity concerns that are pertinent to the soils on the Emerald Bay project area. The three concerns are soil productivity loss due to construction of roads and development of rock pits, soil productivity loss due to soil displacements on shallow organic soils (McGilvery soils) and soil productivity loss due to slight changes in soil drainage as a result of harvesting timber from relatively low-volume stands growing on poorly drained organic soils.

There are no existing roads or rock pits in the project area.

Forested, poorly drained organic soils are extensive in the Emerald Bay project area; 1,311 acres have been mapped. Concerns with timber harvest on these soils include the ability of the site to grow 20 cubic feet of wood (on average) per year. These soils occur adjacent to Units 1, 2, 5, 9, 11, and 12 on the Emerald Bay project area. The environmental consequences of timber harvest on these sites will be discussed in the wetlands section.

Approximately 462 acres of McGilvery soils have been mapped in the Emerald Bay project area. McGilvery soils consist of well-drained organic matter less than 20 inches thick over

3 Environment and Effects

Soil Erosion and Mass Movement

bedrock. McGilvery soils commonly occur in small patches near rock outcrops and on steep convex slopes. McGilvery soils mapped on the project area occur on steep north and northwest facing slopes. Dragging logs across areas of thin McGilvery soils can physically displace, or remove the soil from a spot or yarding corridor. Field reconnaissance identified several areas of McGilvery soils within and adjacent to proposed harvest units. Where soil displacement would likely exceed Regional soil quality standards, the area of McGilvery soil is not included in the harvest unit. Units 3, 7, 8, 10, and 11 are examples where at least in part of the area was deleted because harvest would have caused adverse impacts to the soil resource.

The relatively thick organic mat covering most mineral soils in the project area helps prevent surface erosion. Where the organic mat is displaced or mineral soil is exposed, surface erosion can occur. Yarding of logs can displace the organic mat and allow surface erosion of underlying mineral soils. In steep, forested terrain with high soil-water levels, mass wasting (landslide) is the dominant erosion process (Swanston 1969). Topographic, geologic, and soil conditions usually determine where a landslide would occur, but rainfall is probably the principal triggering force determining when landslides would occur (Patric and Swanston 1969).

Steep forested terrain occurs mostly on the north end of the Emerald Bay project area. Swanston (1991) inventoried landslides over 100 cubic yards in size across the Tongass National Forest. Landwehr (1998, unpublished) inventoried landslides on the northern Prince of Wales Island with no minimum size limit. Table Soils-1 displays the results of the two inventories on a landslide-per-acre basis.

Table Soils-1
Results of Landslide Inventories in Southeast Alaska

Inventory	Unharvested rate	Harvested rate	Road rate
Swanston (1991)	1 slide/8,021 ac/20 yrs	1 slide/2,348 ac/20 yrs	N/A
Landwehr (1998 unp)	1 slide/6,239 ac/20 yrs	1 slide/622 ac/20 yrs.	1 slide/19 miles/20yrs.

Source: Forest Service, D.Landwehr

Table Soils-1 data indicate that Swanston (1991) found fewer landslides than Landwehr's 1998 inventory. The Swanston inventory did not document landslides smaller than 100 cubic yards. Landwehr documented all slides visible on aerial photos. Both authors reported that landslides in harvested areas tend to be smaller than landslides in unharvested areas.

Naturally unstable areas in the Emerald Bay project area include the extremely steep slopes facing saltwater north of the Emerald Creek Drainage and the headwaters of the Emerald Creek Watershed on the very east side of the project area.

The Forest Service uses a mass movement index (MMI) for preliminary identification of potentially unstable sites in a project area. The mass movement index summarizes the physical properties of a soil and rates the relative stability of the soil. MMI 4 soils are most mineral soils occurring on slopes in excess of 72 percent gradient and some mineral soils with restricted drainage on slopes greater the 60 percent gradient. 1,845 acres of MMI 4 soils are mapped on the Emerald Bay project area. MMI 4 soils were not included in the timber base used to develop the Emerald Bay unit pool. All proposed harvest units with slopes over 50 percent gradients or some indicator of instability were field reviewed by a soil scientist. Units 3, 7, 8 and portions of Units 10 and 11 were excluded from the unit pool due to concerns about slope stability and harvest on shallow soils on steep slopes following soil scientist reconnaissance. Unit 3 was modified to exclude a steep slope section and change one setting to partial harvest for slope stability concerns. In a few cases, the soil scientist identified slopes greater than 72 percent that are suitable for timber harvest due to low landslide potential. Table Soils -2 lists

proposed harvest units and the approximate acreage of slopes over 72 percent gradient by harvest unit.

Table Soils-2

Acres of Slopes over 72 percent Gradient Identified as Appropriate for Timber Harvest by IDT Soil Scientist (Field Estimates)

Unit Number	Acres of slopes over 72 percent	Watershed	Included in Alternatives
3	11	Emerald Ck	B, C & D
5	1	Emerald Ck	B, C & D
6	2	Emerald Ck	B, C & D

Source: Forest Service, D.Landwehr

Harvest on the steep slopes would be partial cut with full suspension via helicopter yarding in all three action alternatives.

Environmental Consequences

Direct and Indirect Effects of the Alternatives

There are no existing roads on the Emerald Bay project area. Alternatives A and C do not propose any new road. Alternative B proposes 6.2 miles of road; 4.7 miles of the proposed road would lie within the Emerald Creek Watershed. Approximately 0.6 miles of road would be constructed in the upper end of the Wasta Creek drainage and another 0.9 miles of road would be constructed in a first-order watershed just west of Emerald Creek. The roads and associated rock pits would impact about 16 acres of land. The land impacted by the road is approximately 0.5 percent of the project area.

Alternative D proposes 3.8 miles of roads and associated rock pits, which would impact about 22 acres of land. The land impacted by the road is approximately 0.3 percent of the project area. The soils analysis assumes a 40-foot wide disturbed soil area, or 4.8 acres per mile of road. The soils analysis also assumes a 2-acre rock pit for every 2 miles of proposed road.

Soil Productivity

Soil disturbance within harvest units can have a detrimental impact on soil productivity, especially on areas of well-drained organic soils underlain by bedrock at shallow depths (McGilvery soils). Soil disturbances are areas where felling of trees or yarding of logs has displaced the surface organic mat. Disturbances larger than 100 square feet are considered detrimental to soil productivity (Region 10 Soil Quality Standards). These larger disturbed areas are referred to as soil displacements. Landwehr (1997, unpublished) monitored soil disturbances and soil displacements on slopes over 75 percent gradient on the 89-94 Ketchikan Pulp Company Long-Term Sale area. Landwehr found that partial suspension cable logging on these steep slopes resulted in approximately 4.2 percent of the soil surface displaced. Full suspension yarding resulted in approximately 1.7 percent of the soil surface displaced. Table Soils-3 displays the estimated acres of soil displacement by alternative. The analysis assumes 5 percent displacement for areas where partial suspension is planned and 2 percent displacement for areas where full suspension yarding is planned. The estimates given in Table Soils-3 are coarse and based on timber harvested from very steep slopes. In all likelihood, soil displacement on gentler slopes would be much less. Partial harvest prescriptions are planned for 620 acres in Alternatives C and D, and 205 acres in Alternative B. Although no soil displacement monitoring information is available for partial harvest with helicopter yarding, the partial-harvest prescriptions would probably result in less soil displacement than clearcut harvest.

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Table Soils-3
Effects on Soil Productivity by Action Alternative

Alternative	Productivity Loss from Roads (acres)	Displaced Soils from Harvest (acres)	Rock Pits (number)
A	0	0	0
B	36	29	3
C	0	15	0
D	18	15	3

Source: Forest Service, D.Landwehr

McGilvery soil areas were identified during unit reconnaissance. Where soil displacement was likely to exceed Region 10 Soil Quality Standards (based on past monitoring results, Landwehr, 1997 unpub.) the areas of McGilvery soil were not included in the harvest unit. Small areas of McGilvery soils are included in the helicopter-log, partial-cut portion of Unit 3.

The intent of the Regional Soil Quality Standards is to maintain soil productivity within acceptable standards. The Standards allow up to 15 percent of the productive forestland to be in a detrimental condition. Monitoring of Regional Soil Quality Standards on the 89-94 project area (Landwehr, 1997 unpublished) found that typically less than 5 percent of the soils in steep slope timber harvest units are left in a detrimental condition.

No harvest or road construction is planned for Alternative A; any disturbance would be caused by natural events. Clearcut harvest using cable- or shovel-logging systems is planned for 397 acres in Alternative B; no clearcutting is proposed in Alternatives C or D. Partial cutting is planned for 620 acres in Alternatives C and D and 205 acres in Alternative B. Helicopter yarding would be required to harvest the partial-cut harvest units. Given the partial-harvest prescriptions and the use of helicopter yarding for the steeper slope areas, soil displacements and other detrimental impacts to soil resources within harvest units would very likely be within Soil Quality Standards.

Surface Erosion and Mass Movement

Due to the relatively thick organic mat covering most mineral soils, surface erosion is limited to detrimentally displaced areas, roads, stream banks and recent landslide tracks. Detrimentially displaced areas within timber harvest units are routinely slashed and seeded shortly after they occur (BMP 13.11). Slashing the disturbed site provides soil cover, reducing the force of raindrop impact and the length of exposed slope. Grass seeding and fertilizing the area further provides soil cover and provides some organic matter for soil rehabilitation.

Factors affecting the landslide rate in future harvest units include the amount of timber harvest on steep slopes and the amount of soil disturbance in harvest units. Less soil disturbance in a harvest unit results in less disruption of the root mat and subsequently more root strength than if the root mat (soils) is disturbed (Swanston, 1974a). Implementing log suspension requirements has reduced the amount of soil disturbance in harvest units. Partial harvest would be used on 205 acres of harvest in Alternative B and all harvest units in Alternatives C and D and would further help maintain the root mat in harvest units.

The landslide analysis assumes that one landslide would occur in the next 20 years for each 622 acres of timber harvest. The average size of the second-growth landslides is 0.6 acres. The analysis also assumes that one 3.1-acre landslide would occur in the next 20 years for each 6,239 acres of old growth. All assumptions are based on data from Landwehr (1998 unpublished).

There are currently 14 acres of second growth in the Emerald Bay project area. If Alternative A is implemented, landslides in old growth are still predicted to occur. Table Soils-4 displays estimated acres of landslides in the first 20 years following project implementation.

Table Soils-4

Estimated Acres of Landslides by Alternative per 20-year Time Period

Alternative	Acres of old-growth landslides	Acres of second-growth landslides	Acres of road-related landslides	Total
A	2.6	0.0	0.0	2.6
B	2.3	0.7	0.2	3.2
C	2.2	0.7	0.0	2.9
D	2.2	0.7	0.1	3.0

Source: Forest Service, D.Landwehr

The landslide information indicates that similar acres of landslides would result from implementation of Alternative A, B, C or D. This is due, in part, to the large scale of the landslide frequency information when compared to the relatively small scale of the timber harvest proposed in the Emerald Bay project. More landslides would occur in second growth; however, due to their smaller average size, the difference in total acres between alternatives is slight.

Cumulative Effects

The cumulative effects analysis was based on the watersheds. (See Figure 3-3.) Because there have been no past activities that are affecting the functions of the watershed or reasonably foreseeable future actions, the cumulative effects are the same as the direct effects. Any disturbance that occurred with the 14 acres of partial harvest has ceased to affect the watershed. A sediment risk analysis (Geier 1998) has been completed on each watershed in the Emerald Bay project area. The sediment risk analysis includes several factors pertinent to sediment production and routing of sediment in a watershed. The Wetlands and Water sections used the sediment risk analysis information, air photo interpretation, and ground reconnaissance to evaluate the potential effects of timber harvest activities in the watershed.

Mitigation

No project-specific mitigation is identified.

Monitoring

No monitoring is identified.

Subsistence

The following discussions and analysis are based on the detailed subsistence information and analysis contained in the Forest Plan FEIS, Chapter 3: "Subsistence" and "Communities," Appendix H, and the "Deer Harvest Map" in the map packet. See also the Wildlife section of this chapter for additional analysis of deer and other wildlife species.

Affected Environment

Subsistence and ANILCA

Subsistence is a broad term applied to many natural resource uses of rural Alaskans. In the Alaska National Interest Lands Conservation Act (ANILCA), subsistence is defined (in part) as "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation" (ANILCA Sec. 803). ANILCA provides for the continuation of these uses "consistent with sound management principles, and the conservation of healthy populations of fish and wildlife" (ANILCA, Sec. 802). For many rural Alaskans subsistence is a way of life; for many rural Alaskans it also carries heritage and religious meaning.

The analysis of subsistence uses and resources on National Forest System lands, and of potential effects resulting from management activities, is also required by ANILCA (Sec. 810). This analysis typically focuses on food-related resources, which are the ones more likely to be affected due to loss or alteration of habitats from land-altering activities. The analysis typically focuses on three factors: abundance and distribution of the resources, access to them, and competition for the use of them. Under ANILCA, if it is found that a significant restriction on subsistence resources may occur (from a specific project or cumulatively for a geographic area), additional analysis and findings are required.

Subsistence Resources and Uses

The Forest Plan FEIS provides a comprehensive analysis of subsistence resources and potential effects, both Tongass-wide and for each rural community of Southeast Alaska. Under full implementation of the Forest Plan, the only subsistence resource that maybe significantly restricted in the future is subsistence use of deer (Forest Plan FEIS, pp. 3-224 to 3-229). The following is tiered to that analysis.

Subsistence use of salmon and trout in the project area is minor. Alaska Department of Fish and Game does not grant personal use permits for Emerald Creek; fish may be harvested with a State of Alaska sport fishing license. The principal subsistence wildlife resources are deer, wolves, and smaller furbearers such as marten. Except for deer, use of wildlife species for subsistence purposes is relatively minor within the project area. Other subsistence uses of natural resources may occur. Some examples are cedar bark gathering, berry picking, mushroom gathering, use of native plants for arts and crafts, use of bays and estuaries for shrimp and crab, and collection of other edible plants and animals.

Alaska Department of Fish and Game (ADF&G) identified subsistence resources in VCU 7210 as having a high sensitivity to disturbance.

Community use of deer for subsistence purposes is well documented and studied for the rural communities of Southeast Alaska (see Forest Plan FEIS, pp. 3-210 to 3-223 and 3-523 to 3-528). Community use is discussed in the Forest Plan FEIS in the "Communities" portion of Chapter 3 (pp. 3-523 to 3-685) and in Appendix H. Community use of each WAA for deer is displayed on the "Community Deer Harvest" map included with the Forest Plan. WAA 1817 represents harvest patterns for the Emerald Bay; the project area comprises 10 percent of WAA 1817. See Figure 3-1.

Three communities were responsible for the entire reported harvest of deer in WAA 1817: Ketchikan, Wrangell, and Meyers Chuck. The map shows that from 1987-1994, the average reported annual harvest in WAA 1817 was 24 deer. Ketchikan residents harvested 71 percent of the deer, Wrangell harvested 17 percent, and Meyers Chuck harvested 12 percent. WAA 1817 represents a substantial portion of the total deer harvest for Meyers Chuck (17 percent). Although hunters from Wrangell harvest a greater number of deer from WAA 1817, this harvest constitutes only 1 percent of the total Wrangell harvest. Ketchikan is classified as a non-rural community and residents do not have a subsistence priority under ANILCA. Under ANILCA, a priority for use would be granted to rural users if restrictions on use of a resource were necessary.

Deer harvest has declined since 1995. Average reported harvest between 1996 and 2002 was 7 deer/year; 0 deer have been reported from WAA 1817 since 2002 (ADF&G Harvest reports). Subsistence hearings were held in 2004, in Ketchikan and Wrangell. The hearing in Meyers Chuck was held by teleconference; written comments were accepted. One person testified in Ketchikan; no testimony was given in either Meyers Chuck or Wrangell. Subsistence hearing notices and transcripts are provided in Appendix C.

Environmental Consequences

Subsistence use of the area is low. No specific areas have been identified. No testimony was received from Meyers Chuck, the community that relies the most on WAA 1817 for subsistence resources. It is plausible that the majority of use of WAA 1817 by Meyers Chuck residents occurs in the southern end of the WAA near the community, but use extends up the beach to Vixen Inlet and Emerald Bay. Impacts to subsistence resources, other than deer, would be negligible. Fisheries resources are protected (see Fisheries section) and most other uses would occur within the OGR and beach/estuary buffer. Therefore, only deer will be analyzed in detail. Analysis will address the ANILCA categories: access, abundance and distribution, and competition.

Direct Effects of the Alternatives

Access

The project area and the entire WAA are only accessible by boat or float plane. The project area is 12 air miles from Meyers Chuck, 35 air miles from Wrangell, and 40 air miles from Ketchikan. Access would not change under Alternatives A and C. The road proposed under Alternatives B and D would increase access into the interior of the project area. This could shift some hunting further inland instead of predominantly along the beach. The proposed Emerald Bay road would not alter access near Meyers Chuck nor within the other 90 percent of the WAA. The road is only open to logging traffic during the life of the sale. It would be closed to all motorized vehicles at sale termination and the LTF removed. Until the road surface becomes overgrown with alder and other vegetation (approximately 20 years) foot travel would be enhanced. At that time, access would return to current levels.

Abundance and Distribution

Alternative A would not change deer abundance and distribution. Only minor effects on deer abundance are anticipated under Alternatives B, C, and D for the following reasons:

Only 1 percent of the WAA would be harvested under any action alternative. Likewise, the deer model projects a 1 percent decline in deer habitat capability.

Important coastal winter range is protected in the northern portion of the WAA by the medium OGR, the small OGRs in VCU 7200 and 7220, and beach/estuary and riparian buffers. No activities, other than mining exploration, are proposed in the southern portion of the WAA.

Travel corridors would be maintained.

3 Environment and Effects

The greatest impact to deer abundance may be increased hunting by logging crews. Having a floating camp under Alternative C, and potentially a land camp under Alternatives B and D, would place more people in the area during hunting season. This impact would be short term as the sale is expected to be completed within 5 years.

Alternative A would have no effect on deer distribution. Partial cutting in Alternatives C and D would not create a noticeable shift in deer distribution. A minor shift in deer distribution may occur under Alternative B because of the clearcuts. Young clearcuts (<25 years) contain abundant forage and deer would take advantage of it during the summer. Some use may occur during mild winters, but the clearcuts are at higher elevations. Once stem exclusion occurs, the clearcuts are devoid of forage. They are generally avoided by deer during the winter (Doerr 2005). Since the clearcuts comprise less than 1 percent of the WAA, this minor shift in deer distribution would not impact subsistence use.

Competition

Meyers Chuck is the only rural community that relies heavily on deer harvest in WAA 1817 for a substantial portion of its subsistence food needs. Most use would be expected to occur in the portion of the WAA nearest the community. Increased competition would likely arise from logging crews at Emerald Bay, but overall use of WAA 1817 is expected to remain low and no restrictions would be necessary.

In order for the WAA to produce enough deer to maintain a healthy population, account for predation by wolves, and provide continued subsistence and sport hunting, deer harvest by humans should not exceed a certain percentage of the habitat capability for that area. The Forest Plan FEIS makes two assumptions in this regard (FP 3-611):

- Hunters in areas where demand equals 10-20 percent of habitat capability may experience reduced hunter efficiency and moderate difficulty in obtaining deer.
- In areas where demand exceeds 20 percent of habitat capability, deer harvest may be restricted either directly or indirectly.

The 36 percent wolf predation factor was applied to deer habitat capabilities before calculating if hunter demand can be met (see deer model spreadsheet, Background and Assumptions for additional information). This reduced capability displays the number of (theoretical) deer available to hunters. The analysis for Meyers Chuck (Forest Plan FEIS, pp. 3-608 to 3-611, and H-81) shows historic and projected use of WAA 1817. Forest Plan projected demand in 2005 was used to calculate current percentage of habitat capability, although actual harvest between 1996 and 2004 was much less. Meyers Chuck requires 0.3 percent of habitat capability, all rural users 0.6 percent, and the total demand equals 1.9 percent of habitat capability. Thus, no restrictions would be necessary.

Cumulative Effects

The Union Bay mining exploration on Mt. Burnett is the only other project occurring in WAA 1817. A workforce of 6-8 people is projected for 2005.

Historic numbers of deer harvested, and potential direct and cumulative effects of full implementation of the Forest Plan in conjunction with the anticipated future demands for deer, are displayed in Appendix H of the Forest Plan FEIS.

After 100 years of full implementation of the Forest Plan, demand by Meyers Chuck residents is projected to reach 0.5 percent of habitat capability, and demand by all rural users of the area to reach 1.3 percent. Demand by all hunters is projected to be at 4.0 percent of habitat capability.

Finding

The Forest Plan FEIS provides a comprehensive analysis of subsistence resources and potential effects, both Tongass-wide and for each rural community of Southeast Alaska. Under full implementation of the Forest Plan, the only subsistence resource that maybe significantly restricted in the future is subsistence use of deer (Forest Plan FEIS, pp. 3-224 to 3-229).

Subsistence hearings were held in 2004, in Ketchikan and Wrangell. The hearing in Meyers Chuck was held by teleconference the same day as the hearing in Ketchikan; written comments were accepted. One person testified in Ketchikan; no testimony was given in either Meyers Chuck or Wrangell. Subsistence hearing notices and transcripts are provided in Appendix C.

Based on the preceding analysis, the Emerald Bay project would not pose a significant possibility of a significant restriction on any subsistence resource within the project area, from past, current and reasonably foreseeable future actions.

Mitigation

No project-specific mitigation is identified.

Monitoring

No monitoring is identified.

Threatened, Endangered and Sensitive Species

A combined Biological Assessment/Biological Evaluation (BA/BE) was completed to determine whether the Emerald Bay project may affect Federally listed species or sensitive species listed by the Alaska Region (FSM 2670). The document was prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973 (19 U.S.C. 1536 (c)), and follows standards established in Forest Service Manual (FSM) direction (2672.42) and the Code of Federal Regulations (50 CFR S402). The BA/BE is presented in Appendix B; findings are summarized below.

Affected Environment

Threatened or Endangered Species

Federally listed threatened and endangered species are those plant and animal species formally listed by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS), under the authority of the Endangered Species Act of 1973, as amended. A list of Federally threatened, endangered, and proposed species was obtained for the project area from the USFWS on December 18, 1998 and from NOAA Fisheries (NMFS) on December 24, 1998. The combined Alaska list was accessed from the USFWS internet sites on August 1, 2005, and reviewed for changes.

No threatened, endangered, or proposed fish species are found in or adjacent to the project area. Although occasionally found in outside waters, none of the listed fish species are known to occur in the inside waters of Southeast Alaska.

Plant surveys were done initially in 1998, with additional surveys in the summer of 2003. No threatened, endangered, or proposed plant species are known to occur in Southeast Alaska or within the project area.

One threatened and two endangered species of marine animals potentially occur in waters adjacent to the project area (Table TES-1). Findings for these species are discussed below. Kittlitz's murrelet, a candidate species that has been proposed for listing, is found in more-northern glacially affected habitats, such as Glacier Bay and Tracy Arm. There is no suitable habitat on the Cleveland Peninsula or on the Ketchikan/Misty Fiords Ranger District. The District is outside the suspected range of Kittlitz's murrelet (Brockmann, S., USFWS, pers. comm.). No other threatened, endangered, or proposed birds or mammals are known to occur in the project area.

Table TES-1
Threatened and Endangered Species That May Occur In or Near the Emerald Bay Project Area

Common Name	Scientific Name	ESA Status	Determination
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered	Not likely to adversely affect
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened	Not likely to adversely affect
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	No effect

Source: see BA/BE in Appendix B

Humpback Whale

Humpback whales are found in waters bordering the project area. Although some have been seen every month of the year, humpbacks generally feed in Southeast Alaskan panhandle waters from roughly May through December and winter in Hawaii. The local distribution of humpbacks in Southeast Alaska appears to be correlated with the density and seasonal availability of prey. The most important feeding areas include Glacier Bay and adjacent portions of Icy Strait, Stephens Passage/Frederick Sound, Seymour Canal, and Sitka Sound. Waters adjacent to the project area are outside known concentration areas and are used mainly during migration.

Steller Sea Lion

Steller sea lions are commonly found in waters bordering the project area. Information on Steller sea lion population trends in Southeast Alaska is limited, but suggests that Steller sea lion populations are stable or increasing in Southeast Alaska. The closest rookery is over 100 air miles away on Forrester Island, west of Prince of Wales Island. However, a sea lion haulout is located on Easterly Island about 1.5 miles west of the project area. Easterly Island has been designated as critical habitat.

Leatherback Sea Turtles

The leatherback sea turtle uses open seas, bays and estuaries. They are common in Hawaiian offshore waters and occasionally sighted as far north as Alaska. Threats have been identified as development of sandy beaches used for nesting, disturbance, commercial fisheries entanglements, harvest of eggs and adults, and marine pollution, especially plastics and oil spills.

Sensitive Species

Sensitive species are plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a) significant current or predicted downward trends in population numbers or density or b) significant current or predicted downward trends in habitat capability that would reduce a species existing distribution.

There were four R10 sensitive wildlife species and 10 sensitive plant species analyzed in the BA/BE (Table TES-2). No sensitive fish species are known to occur in or adjacent to the project area. Species with a "no impact" determination are not discussed further; see the Biological Evaluation for detailed information on all species.

Table TES-2
R10 Sensitive Species

Common Name	Scientific Name	Determination
Queen Charlotte goshawk	<i>Accipiter gentilis laingi</i>	May impact individuals*
Trumpeter swan	<i>Cygnus buccinator</i>	No impact
Osprey	<i>Pandion haliaetus</i>	No impact
Peale's peregrine falcon	<i>Falco peregrinus pealei</i>	No impact
Goose-grass sedge	<i>Carex lenticularis</i> var. <i>dolia</i>	No impact
Edible thistle	<i>Cirsium edule</i>	No impact
Davy mannagrass	<i>Glyceria leptoctachya</i>	No impact
Wright filmy fern	<i>Hymenophyllum wrightii</i>	No impact
Truncate quillwort	<i>Isoetes truncata</i>	No impact
Calder lovage	<i>Ligusticum calderi</i>	No impact
Bog orchid	<i>Platanthera gracilis</i>	No impact
Loose-flowered bluegrass	<i>Poa laxiflora</i>	No impact
Unalaska mist-maid	<i>Romanzoffia unalaschecensis</i>	No impact
Queen Charlotte butterweed	<i>Senecio moresbiensis</i>	No impact

* "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide"

3 Environment and Effects

Queen Charlotte Goshawk

The Queen Charlotte subspecies, which is present in Southeast Alaska, has been the focus of ongoing legal battles. Following a petition for listing in 1994, and court remand of the initial not-warranted determination, the USFWS issued a 1997 decision that listing the Queen Charlotte goshawk as threatened or endangered in Alaska was not warranted at that time. USFWS concluded that because the range of protective mechanisms in the old-growth reserves and the matrix would preserve 75 percent of the original productive old-growth forest on the Tongass National Forest, the goshawk is not likely to become extinct in Southeast Alaska. The petitioners filed a second lawsuit. The U.S. District Court for the District of Columbia adopted the recommendations of Judge Faccioli on May 27, 2004, and denied the plaintiffs' motion for summary judgment concerning the need for listing of goshawks in Alaska. However, he did remand the British Columbia segment and required USFWS to further evaluate the status of Queen Charlotte goshawks on Vancouver Island.

High-volume (vc 6&7) old-growth forest is the preferred habitat, followed by medium-volume (vc 5) old growth; most use was on gentle slopes (< 35 percent) below 800 feet elevation. Many nests were located in riparian or beach fringe landscape. Clearcuts, non-forested habitat, and young second growth are generally avoided (Titus et al. 1994, Iverson et al. 1996). Preferred habitat currently comprises 24 percent of the project area. Goshawk surveys were completed in 15 potential habitat locations in the Emerald Bay project area in April and July of 1998. Surveys followed Tongass NF protocols for the northern goshawk. Ten broadcast survey points (11.9 hours) and 5 overlook survey points (6.2 hours) were completed. Goshawk survey crews and other field crews observed no goshawks and found no goshawk nests.

Species of Interest

Choris Bog Orchid

Choris bog orchid was removed from the sensitive list in May 1999 following publication of the Draft EIS. Recent botanical surveys on Revillagigedo Island have revealed a number of populations of this species. With the increasing number of observations, it seems that this species is not as rare as previously thought. In Alaska, the Choris bog orchid is limited to the Aleutian Islands and southern coastal areas. Botanical surveys in 1998 discovered populations of the plant in Units 3 and 12.

Environmental Consequences

Effects of the Alternatives on Threatened or Endangered Species

There would be no effect on any Federally listed fish or plant species under any alternative due to species absence in or adjacent to the project area. There would be no effect on leatherback sea turtles, as they rarely enter marine waters of the Inside Passage and none of the identified threats are regulated by or within the jurisdiction of the Forest Service. None of the alternatives are anticipated to adversely affect the humpback whale or Steller sea lion. Rationale is summarized below. Concurrence on the final BA/BE was received from USFWS on August 21, 2005, and from NMFS on September 6, 2005.

Humpback Whale

No direct effects on whales are anticipated from implementation of forest management activities under any alternative. All activities would be conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales, dolphins, and porpoise (Forest Plan page 4-89 and 4-114). One potential effect has to do with the use of log transfer facilities (LTFs). To prevent the chance of entanglement, LTFs should be kept clear of dangling cables, ropes, and other materials. Two of the six categories of human impacts identified in the recovery plan for the humpback whale are possible as indirect effects: 1) acoustic disturbance and 2) collisions with ships. Acoustic disturbance sources include all types of marine vessels and low-flying aircraft. Whale response to noise varies and is correlated to size, behavior, and composition of the whales at the time of disturbance. Responses have ranged from leaving or avoiding feeding and nursery areas to becoming habituated to vessel traffic. Habituation,

however, may cause humpbacks to be more vulnerable to vessel strikes (NMFS 1991). Logs harvested from the Emerald Bay project would be loaded onto barges at an LTF in Alternatives B, C, and D and towed to a mill. The use of barges would greatly minimize bark sloughing and potential impact to prey species. Increased barge traffic from log transport may temporarily displace humpbacks in the vicinity of Emerald Bay or slightly increase the possibility of collision. Disturbance would be temporary in nature. The helicopter-to-barge log transfer in Alternative C could be slightly more disruptive since barges would be anchored in the channel for loading. The project is not likely to adversely affect humpback whales.

Steller Sea Lion

Forest Plan Standards and Guidelines require that all activities would be conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching seals and sea lions (Forest Plan page 4-88 and 4-114). LTFs, camps and other developments are required to be located at least 1 mile from haulouts. Anchored log barges and floating camps would be required to maintain this distance from Easterly Island. During lower tides, the Easterly Island haulout has relatively abrupt dropoffs that could be hazardous to sea lions. In consultation with the NMFS, additional procedures to prevent disturbance of the Easterly Island haulout would be implemented for the Emerald Bay project. Project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout. Project-associated aircraft would be required to remain at least 0.5 miles horizontal and 1,500 feet vertical distance from the haulout. Sea lions were observed immediately in front of the proposed land-to-barge LTF site. Sea lions could be temporarily displaced from this area during sale operation, but long-term displacement is not anticipated. The Emerald Bay project should have no adverse effects on Steller sea lions or on their critical habitat.

Cumulative Effects

No adverse cumulative effects are anticipated for any threatened, endangered, or proposed species. Log barge traffic and helicopter to barge loading could cause shifts in commercial fishing activity, which could displace sea lions and humpbacks from additional areas. However, this is expected to be localized and temporary in nature. Log haul from the potential Sunny Bay sale would most likely go north to the mill in Wrangell. There would be no cumulative effect to threatened or endangered species or critical habitat.

Effects of the Alternatives on Sensitive Species

No sensitive plants were found during project area surveys. Survey intensity is designed to determine presence/absence of a given area. Therefore, no impact would occur.

Queen Charlotte Goshawk

All action alternatives would harvest stands capable of providing nesting and/or foraging habitat for goshawks (i.e., old-growth forests). All action alternatives would reduce old-growth forest in the project area by about 11 to 12 percent (see Table Old Growth-3). Partial-cut units would likely leave about 50 percent of the basal area based upon diameter classes (see Silvicultural section). Resulting stands would vary depending upon current size composition, but it is anticipated that the majority of the partial cut areas would not provide high-value nesting or foraging habitat. Table TES-3 displays the amount of high-value nesting habitat that would be harvested under each alternative.

Table TES-3

Goshawk Habitat in VCU 7210 (Moderate to High Volstrata POG less than 800 feet Elevation)

	Alt A	Alt B	Alt C	Alt D
Acres in project area	1,859 acres	1,617	1,601	1,601
Percent reduction	0%	-13%	-14%	-14%

Source: FS GIS Vol Strata

3 Environment and Effects

Alternatives B and D would construct a road through the beach/estuary buffer. The road corridor ranges from muskeg to low-volume old growth dominated by cedar and pine to moderate volume either dominated by hemlock/spruce or large-diameter redcedar.

No goshawk nests have been found in or near the Emerald Bay project area. However, goshawks are extremely difficult to locate and it is possible that the project area includes one or more breeding territories. Any goshawk nests found during field reconnaissance or unit layout would be protected from harvest by implementing Forest Plan Standards and Guidelines for goshawks. These require the maintenance of an area of not less than 100 acres of productive old-growth forest (if it exists) generally centered over the nest tree or probable nest site, preferably with a multi-layered, closed canopy and providing foraging opportunities for young goshawks. No commercial timber harvest is permitted, and no continuous disturbance likely to result in nest abandonment is permitted within the surrounding 600 feet from March 15 to August 15. Activity restrictions are removed for active nests that become inactive or are unsuccessful. The Emerald Bay project may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, nor cause a trend to Federal listing or a loss of species viability rangewide.

Cumulative effects

The cumulative effects analysis area for these sensitive species is Wildlife Analysis Area 1817. The only harvest that has occurred in the past was 14 acres of selective harvest along the beach in the 1930s. There are no other scheduled harvests planned within the WAA 1817. Other potential impacts to sensitive plants include mining exploration on Mount Burnett, although surveys are being conducted to minimize impacts. There would be no impact on sensitive species other than goshawk. Goshawk habitat would be reduced by 2 percent within the WAA.

Effects on Species of Interest

Choris Bog Orchid

Botanical surveys discovered populations of this plant in Units 3 and 12. Choris bog orchid appears to be well distributed in the project area, so more populations may be discovered. Therefore, the project may affect Choris bog orchid; however, due to the number of known populations, the project is not likely to disrupt the general distribution of the species.

Mitigation

To prevent disturbance to sea lions (agreement with NMFS 12/18/2000), project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout on Easterly Island. Floating camps and helicopter-to-barge operations (Alternative C) would be required to maintain a 1-mile distance. Project-associated aircraft would be required to remain at least 0.5 miles horizontal and 1,500 feet vertical distance from the haulout.

Log transfer facilities (LTFs) would be kept clear of dangling cables, ropes, and other materials that could entrap humpback whales (NMFS letter 10/30/2000). Consistent with the Marine Mammal Protection Act, project-associated boats and barges in transit are required to remain at least 100 yards from humpback whales.

In the event that any TES species is found during layout, it will be reported to the District Biologist/Botanist and the applicable standards and guidelines applied.

Monitoring

No monitoring is identified.

Transportation and Access Management

Affected Environment

Access to the Cleveland Peninsula and the Emerald Bay project area is by floatplane, helicopter and boat. There are no existing roads in the project area. The location of the Timber Production LUD in the project area is largely surrounded by other non-development LUDs (Figure 1-2) or steep terrain.

Environmental Consequences

The effects of the transportation system on other resources are discussed in the specific resource sections. This section focuses of the transportation system by alternative and discusses post-project access management.

Direct Effects

Road Development

No roads would be constructed in Alternatives A and C. Lack of road access would make future entries and stand improvement activities more expensive to implement.

Alternatives B and D propose new road construction through a medium OGR to connect the log transfer facility to the Timber Production LUD. The Forest Plan states that new road construction is generally inconsistent with Old-growth Habitat LUDs. Roads may be constructed if no feasible alternative is available. "If no feasible alternative routes exist, locate, design and construct roads in a manner which minimizes adverse impacts to fish and wildlife resources...." (Forest Plan pg. 3-81)

Road Design

Forest Plan Standards and Guidelines and mitigations minimize adverse effects of road construction on fish and wildlife resources. Alternatives B and D would construct a road through the OGR. Therefore, it was concluded that the road should be a low-impact classified road because it would allow design features to reduce adverse effects to fish and wildlife resources. The road would be 14 feet wide instead of the 16-foot standard. The vegetative clearing width would be reduced to meet the needs of the 14-foot road width. For this analysis we are assuming an average clearing width of 55 feet, realizing that it would be much less on the flatter terrain. These roads would be put in storage and closed to all motorized vehicles to reduce effects to fish and wildlife. The design would retain as much wildlife habitat as possible.

To help minimize adverse impacts on fisheries, log-stringer bridges would be used to cross Class I, II, and III streams. Class IV streams are too small for log-stringer bridges and would have culverts. Log-stringer bridges would reduce the potential for sediment to enter streams during the installation and removal of culverts. In addition, timing restrictions would be included on all Class I streams (see Fisheries Section). The roads would also be outsloped, reducing the need for ditches and extra culvert crossings for drainage. The outsloped roads would place any runoff and sediments into vegetative buffers.

Road access is managed to prevent damage to the roadway, and to meet objectives for resources such as fish, water quality and wildlife, while maintaining access for future timber management and related activities. The roads in Alternatives B and D would provide access to over 600 acres for timber harvest and log transport during the period of the timber sale contract. The roads constructed under these alternatives would reduce the cost of future access.

3 Environment and Effects

After timber harvest the travel management objective would be to “eliminate” road use. All temporary roads would be decommissioned. Decommissioning was considered for the classified road and eliminated because of cost. Putting the classified road in storage is the recommended method to accomplish the travel management objectives. There are four primary strategies for storing the road.

- Initiate a road closure order prohibiting all motorized vehicle use.
- Remove log-stringer bridges and culverts and install waterbars.
- Remove the LTF, spread the bulkhead rocks on the LTF site.
- Place large debris, such as rocks, root wads and stumps on the road and LTF surface

Other Routes Considered but Dropped from Detailed Analysis

Five alternative routes were investigated to access the proposed harvest units (Figure 3-9). The main objective of these routes was to avoid road construction in the medium old-growth reserve. Other objectives were to provide alternatives to constructing an LTF in Emerald Bay, minimize road construction on steep slopes and unstable soils, and minimize construction costs. These alternative routes are compared in Table Transportation-1. Four of these routes do not avoid constructing roads through OGRs. The Frosty Bay, Sunny Bay and Snail Point routes cross other ownerships that would require road easements.

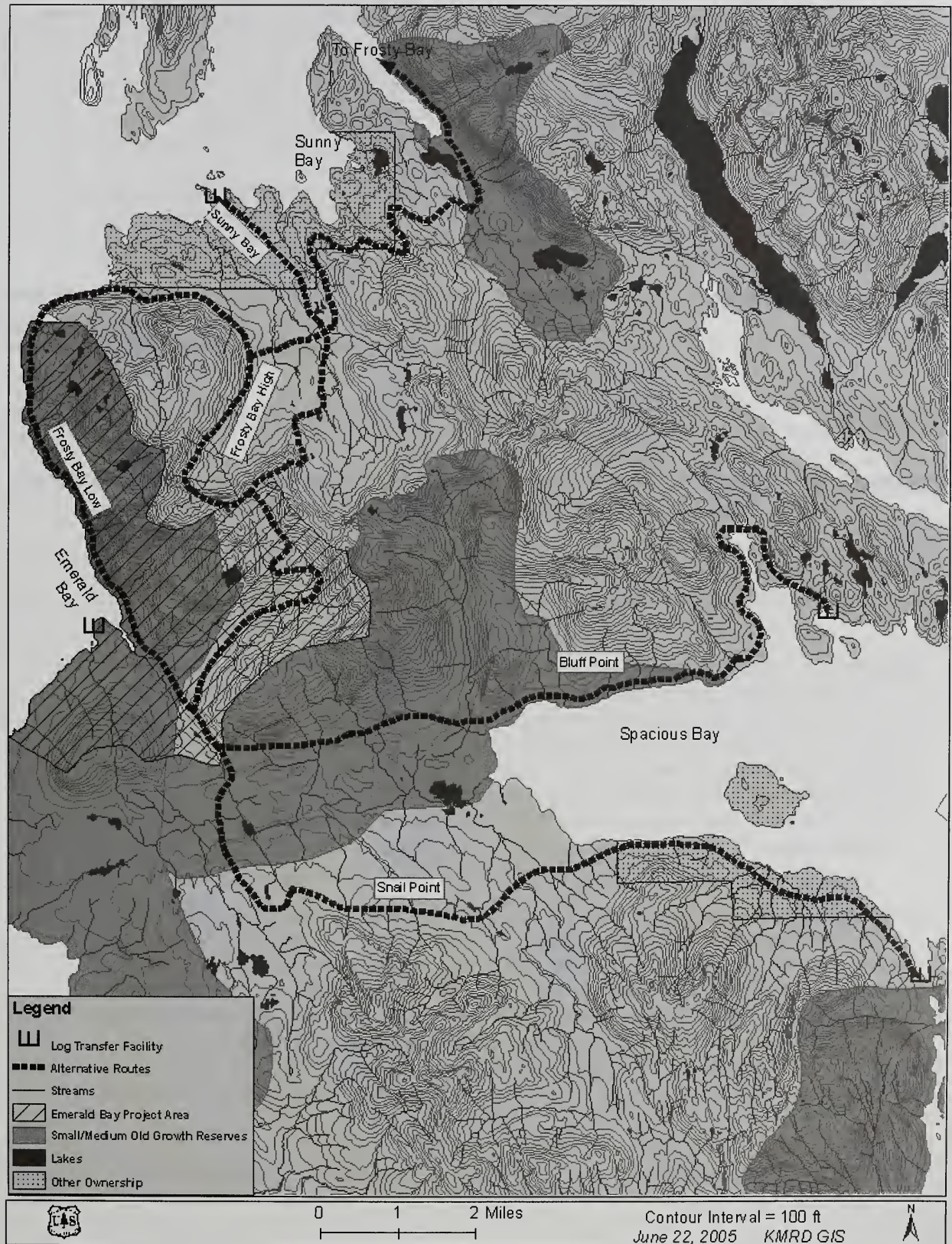
Two northern routes were investigated that would access an existing LTF at Frosty Bay. Frosty Bay High and Frosty Bay Low routes were eliminated because they required construction over steep rocky terrain and were more than three times longer and five to six times more expensive to construct. Both routes traveled through Cleveland Roadless Area #529 and the Frosty Roadless Area #210. The Sunny Bay route was also investigated and eliminated. It would require construction of an LTF at Sunny Bay, and require road construction over steep rocky terrain with high landslide potential. This route would cross State of Alaska lands and an easement would be required.

Two routes to the south that would transport the logs via Spacious Bay were investigated. Both routes would avoid the medium OGR around Emerald Bay, but would cross small OGRs on the route to an LTF that would need to be constructed in Spacious Bay. The Bluff Point route would access the north side of Spacious Bay and Snail Point route would access the south side of Spacious Bay. The Bluff Point route would cross about 6.6 miles of a small OGR and the Snail Point route would cross about 1.6 miles of a small OGR. Both routes would require more stream crossings and cross more wetlands than the Emerald Bay route. These routes would be more than twice as long and would have four times the construction cost of the Emerald Bay route.

An easement through State lands would be needed to access a Snail Point LTF site. The State management for this area is for wildlife and remote recreation (DNR, 2000). Discussions with the State about this parcel in 2001 indicated they would not find road construction consistent with these uses, but no easement request was pursued because this alternative was eliminated from detailed study. This land has since been conveyed to the University of Alaska in 2005. Reconnaissance of the Cleveland Peninsula in the early 1990s with State agencies did not identify Spacious Bay as a desirable LTF site. This early reconnaissance also noted that the quality and volume of timber were low along the Snail Point route.

None of the alternate routes would meet the policy of using the minimum road system necessary (FSM 7710.3). All of the alternate routes were deemed infeasible to access the Emerald Bay project area because of one or more reasons: road construction costs, miles of road through an OGR, or the potential for resource damages involved with construction of roads on unstable soils and steep slopes. As a result, it was determined that the road route through the OGR to Emerald Bay represented the only feasible route. The project record contains additional information about the alternative road routes considered.

Figure 3-9
Alternate Routes Considered but Dropped from Detailed Analysis



Source: GIS, Forest Service, T.Connor 2005

3 Environment and Effects

Table Transportation-1
Alternative Road Route Comparison

Route Name	Total Miles	Miles in OGR	Miles on Steep Slopes	Estimated Cost with Bridges
Frosty Bay High Route	19.4	2.2	1.0	\$4,505,000
Frosty Bay Low Route	25.6	7.7	3.5	\$4,870,000
Sunny Bay Route	9.6	0	0.3	\$2,180,000
Bluff Point Route	16.2	6.6	0.2	\$3,372,250
Snail Point Route	17.0	1.6	0.0	\$3,321,000
FEIS Alternative B	6.2	2.2	0.1	\$ 800,000
FEIS Alternative D	3.8	2.2	0.1	\$ 530,000

Source: Forest Service GIS data

Cumulative Effects

The area analyzed for cumulative effects is the project area because there is little potential for the roads to provide access beyond this area. Since there are no existing roads from past activities or reasonably foreseeable proposed roads within the project area, there are no cumulative effects.

Mitigation

Please refer to the Fisheries, Recreation, and Scenery sections of Chapter 3 for timing restrictions.

Monitoring

Road use during and following harvest would be monitored to determine whether closure measures are sufficient to preclude all motorized use.

Water and Wetlands

The following discussions and analysis are based on and summarized from the Soil, Floodplain, Riparian, and Wetland Resources Report for the Emerald Bay project (1999), and the Water and Fish Resource Report for the Emerald Bay project area (1999). A Forest-wide treatment of water resources may be found in the Forest Plan FEIS, Chapter 3. Applicable water quality direction is included in the Forest Plan, Chapter 4 ("Riparian" and "Soil and Water") and Appendices C, D and J. Additional mitigation measures are discussed in Chapter 2.

The water-related resources of the Emerald Bay project area include floodplains, riparian areas (including streams, lakes and ponds), and wetlands. The effects of past timber harvest activities on the Emerald Bay drainage are minimal. Additional analysis relative to riparian areas may be found in the Fisheries section of this chapter.

Affected Environment

Riparian Management Areas

Riparian areas are lands adjacent to streams, lakes and ponds that are either influenced by groundwater from the water body, or are lands that can directly influence the water quality of a water body when ground-disturbing activities occur. Riparian areas can include both upland and wetland areas adjacent to water bodies or streams. Riparian areas also include floodplains and alluvial fans, and areas below the slope-break on V-notches or gorge channels.

Stream process groups are groups of streams that share similar formative processes and stream channel characteristics. Process groups reflect the long-term interaction of geology, landform, climate, and riparian vegetation. The Riparian Standards and Guidelines in the Forest Plan are specific to stream process groups.

Wetlands

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater with a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions" (40 CFR 230.41 (a)(1)). "Frequency and duration" of a groundwater table sufficient to support a prevalence of hydrophytic plants can include areas where the groundwater table is 12 inches below the soil surface for as little as 2 weeks during the growing season. In the Emerald Bay project area, many wetlands are not associated with streams or lakes and include no surface water areas, while others are intimately associated with lakes or ponds. Some wetlands are dependent on ponds and lakes for recharge water, while some are not.

The Emerald Bay project area covers 7,845 acres, of which approximately 71 percent, or 5,557 acres have been mapped as wetlands. Map interpretations include somewhat poorly drained soils on relatively steep slopes that do not always meet the hydrology criteria for classification as wetlands. Field reconnaissance indicated that this mapping overestimates the actual amount of forested wetlands on steeper slopes. The most common wetland types are forested wetlands (1,729 acres), a forested wetland/non-wetland complex (1,779 acres), a forested wetland/short sedge complex (1,346 acres), and alpine shrub/short sedge (244 acres). Past timber harvest has not occurred on wetlands in the project area.

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Table Water-1
Acres of Wetlands by Wetland Habitat Type

Wetland Habitat	Acres
Alpine Shrub/Short Sedge	244
Estuary	16
Short Sedge Wetland	156
Lakes and Ponds	71
Forested Wetland	1,729
Forested Wetland/Short Sedge Complex	1,346
Forested Wetland/Non-Wetland Complex	1,779
Forested Scrub-shrub/Short Sedge Wetlands	232
Total Wetlands	5,573

Source: Forest Service, GIS

Wetland value (socioeconomic benefit) is largely dependent on the human use or perceived benefit to be derived from wetland functions (hydrologic, bio-chemical and biologic functions such as erosion control and sediment storage, element recycling and maintenance of water chemistry, and providing terrestrial and aquatic habitats).

The Emerald Bay project area was field reviewed for three high-value wetland habitat types: estuaries, tall sedge fens, and sphagnum bogs. Two of the three high-value wetland types occur on the Emerald Bay project area. There are approximately 16 acres of estuary at the mouth of Emerald Creek. Estuaries are regionally recognized as the most important wetland type for the fisheries, wildlife and marine habitat they provide. Part of Road 8645900-1 and a potential rock source are within the 1,000-foot estuary buffer on the southern side. This is allowed where feasible alternatives are not available (Forest Plan p.4-5). Moving the road to the south out of the buffer would impact lower value (muskeg) wetlands.

During project reconnaissance, a small tall sedge fen was identified adjacent to the main stem of Emerald Creek downslope of Unit 11. Tall sedge fens filter large amounts of groundwater and are usually found on the footslope or adjacent to floodplains. Tall sedge fens are included in the Riparian Standard and Guidelines buffer for floodplain process group channel types. The tall sedge fen would be excluded from harvest activity.

No sphagnum bogs were identified during project reconnaissance. Sphagnum bogs are very poorly drained organic soils derived from a relatively undecomposed accumulation of sphagnum moss. Sphagnum bogs are extremely wet and often are associated with very small ponds of standing water. Sphagnum bogs are considered high-value wetlands because of their regional scarcity.

Environmental Consequences

Direct Effects of the Alternatives

Riparian Management Areas

The Forest Plan Standards and Guidelines for riparian areas generally exclude timber harvest from the riparian areas along all Class I, II and III streams (all fish streams and non-fish streams with immediate influence on fish streams). Class IV streams (streams that lack the ability to immediately influence downstream fish habitat and water quality) may be considered for timber harvest. Class IV streams within the project area occur in units receiving both clearcut and partial-cut harvest prescriptions. Specific riparian area protection measures and application of Best Management Practices (BMPs) are documented on the road and unit cards, and in the Soil and Fisheries resource reports, contained in the project planning record.

The potential for windthrow of trees left within harvest units and riparian areas is addressed in the silvicultural prescriptions on the unit cards. For all units that receive partial-cut harvest or extended windfirm buffers, it is anticipated that the residual trees left within harvest units would improve the windfirmness of trees left within Riparian Management Areas.

Wetlands

The high density of wetlands in the Emerald Bay project area makes complete avoidance of wetlands impossible while implementing any of the action alternatives. Many of the remaining forested wetlands on organic soils do not support commercial or economic stands of timber. During Emerald Bay project reconnaissance, proposed timber harvest on poorly drained organic soils was investigated on a case-by-case basis. Large areas of poorly drained organic soils were removed from proposed timber harvest units. Small areas of poorly drained organic soils were considered on a case-by-case basis, and removed from harvest units where appropriate. The amounts actually proposed for the action alternatives are displayed in Table Water-2.

Harvesting timber from forested wetlands causes a temporary increase in soil moisture until equivalent transpiration and interception surfaces are reestablished. The partial-cut harvest proposed for all units would keep some of the evapotranspiration surfaces intact. Tree growth on forested wetland sites is expected to be slower than on adjacent upland sites.

Table Water-2

Acres of Proposed Harvest on Forested Wetlands by Wetland Habitat Type and Major Watershed by Alternative

Wetland Habitat	Alternative B acres		Alternative C & D acres	
	Clearcut	Partial Cut	Clearcut	Partial Cut
Forested Wetland	142	14	0	161
Forested Wetland/Short Sedge Complex	35	11	0	49
Forested Wetland/Non-Wetland Complex	101	97	0	228
Forested Scrub-shrub/Short Sedge Wetland Complex	8	26	0	34
Total	286	148	0	472

Source: Forest Service, GIS

The frequency of wetlands within the project area also makes total avoidance of road construction in wetlands difficult or impossible under Alternatives B and D. Table Water-3 displays the miles and acreages of wetland road construction in Alternatives B. Roads through wetlands can affect the flow and reach of water in the wetland. The degree of impact depends

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largely on the wetland type and the road construction materials and methods. Placement of culverts and the use of coarse rock roads helps to maintain the flow and reach of water. Road location has avoided all high-value wetlands.

Table Water-3
Miles of Proposed Road on Wetlands for Alternatives B and D, and Acres Impacted

Wetland Habitat	Alternative B		Alternative D	
	Miles	Acres	Miles	Acres
Forested Wetland	1.4	6.8	0.6	2.9
Forested Wetland/Short Sedge Complex	2.0	9.7	2.1	10.1
Forested Wetland/Non-Wetland Complex	0.6	2.9	0.0	0.0
Total	4.0	19.4	2.7	13.0

Source: Forest Service, GIS

The Soil, Floodplain, and Wetlands Resources Report discusses the effects of forest roads on wetlands. One study completed outside Wrangell found that the hydrologic effects of a forest road bisecting a gently sloping poor fen were limited to within approximately 50 feet of the road (Swanston et al., pers. comm. 1997). McGee studied the effects of forest roads in a wet forested soil on Prince of Wales Island and found that the road ditch intercepted nearly all of the area precipitation from upslope contributing areas. However, the amount of road-intercepted flow did not translate into equivalent changes in subsurface water levels. Rather, the changes in the subsurface water levels were typically minimal. Where changes did occur, they tended to be concentrated immediately above the cutbank and below the road fillslope (McGee 2000).

The new road construction proposed under these alternatives meets the silvicultural exemption requirements of the Corps of Engineers 404 (b) (1) permitting process.

The floodplains of the Emerald Bay drainage would not be affected by planned harvest, and riparian areas would be excluded from timber harvest under Forest Plan Standards and Guidelines. The Birch Creek drainage has the majority of the project area's high-gradient contained streams.

Windthrow Potential in Riparian Areas

Timber harvest proposed under the three action alternatives would leave trees standing below the slope-break on streams within V-notches. To reduce the chance of windthrow, a variety of silvicultural prescriptions are used for stands adjacent to V-notches to better achieve windfirmness of the remaining trees. Partial-cut prescriptions would provide additional windfirmness. However, some windthrow is still likely within some of the riparian areas associated with the high-gradient contained streams. As a worst case, it is anticipated that blowdown could occur in up to 5 percent of riparian forests adjacent to high-gradient contained streams in the future if all suitable timber lands were clearcut, or along about 1.5 miles of streams.

Wetlands Function

The effects of timber harvest on the beneficial functions of forested wetlands are in most cases expected to be temporary, especially in the case of those harvested using uneven-aged management. Currently there are no roads across wetlands, and the Emerald Bay project could bring that total up to 4.0 miles (under Alternative B).

Cumulative Effects

The only other ground-disturbing activity to date within the watersheds to which this effects analysis is contained was the selection harvest in the beach buffer which occurred 60 to 80

years ago. Since no additional activities are expected to occur for at least 50 years, cumulative effects to the water resources are anticipated to be minimal.

Mitigation

No project-specific mitigation is identified.

Monitoring

No monitoring is identified.

Wildlife

This section is tiered to the wildlife analysis in the Forest Plan FEIS Chapter 3 and Appendix N, Forest Plan SEIS, and Emerald Bay FEIS. Applicable wildlife direction is included in the Forest Plan, Chapters 3 (Land Use Designations) and 4 (Forest-wide Standards and Guidelines) and Appendix K. Mitigation measures listed on road and unit cards contain additional site-specific implementation requirements.

Affected Environment

The natural vegetation of the Emerald Bay project area is a mosaic of coniferous forest interspersed with alpine tundra, muskeg (bog), shrub land, estuarine, and beach-fringe plant communities. Emerald Bay is a small estuary. Winter surveys for swans have not identified any waterfowl concentration areas. A small portion (approximately 14 acres) of the medium Old-growth Habitat Reserve (OGR) near the estuary was harvested approximately 60 to 80 years ago. Single-tree beach harvest has historically taken place in the project area. Refer to the Silviculture section in this chapter for a detailed description of existing and post-harvest stand condition and the Biodiversity and Old-Growth section for details on old-growth habitat. Effects on individual wildlife species habitat are discussed below.

Management Indicator Species

Management Indicator Species (MIS) are species whose population changes are believed to best indicate the effects of land management activities (USDA Forest Service 1982). MIS are used to assess maintenance of population viability (the ability of a population to sustain itself naturally), biological diversity, and management of game (Forest Plan FEIS). There are several MIS species that were not selected for analysis: river otter, Vancouver Canada goose, and black bear. They were not selected because Forest Plan Standards and Guidelines protect primary habitat and no harvest or road building is proposed in these habitats. Brown bear were selected rather than black bear due to their presence in the project area; habitat needs are similar.

The following have been selected as MIS for this project and will be discussed in this chapter. This list also shows their relationship to old-growth habitats, if specific stand structures are required.

Species	Basis for Selection
Sitka black-tailed deer	Important subsistence, game species Low-elevation old growth
American marten	Old-growth habitat; important furbearer High-volume, low-elevation old growth
Mountain goat	Associated with cliffs, alpine, subalpine and old growth Old growth with dense crown closure in winter
Brown bear	In late summer, riparian with anadromous fish
Bald eagle	Nest in old growth along coast and riparian
Alexander Archipelago wolf	Furbearer and game species Old growth for denning
Brown creeper	Use large old-growth trees and snags High-volume old growth

Hairy woodpecker	Use large old-growth trees and snags High-volume old growth
Red squirrel	Use large old-growth trees and snags Cone-bearing trees
Red-breasted sapsucker	Use large old-growth trees and snags Low-volume old growth

Although not a MIS, moose were brought up as a potential issue by Alaska State DGC. They reported that there were two likely reports of moose tracks within Wasta Creek drainage (south of the project area). The nearest moose herd occurs in the Unuk River drainage approximately 25 miles northeast of the project area. Use near the project area is incidental and transitory. Drainages within the project area are too small to support moose. They are not analyzed further. Other species such as mountain lions and wolverines are also sighted occasionally on Cleveland Peninsula. Use is thought to be transitory on the Cleveland Peninsula and Emerald Bay comprises only a small portion of their range. Suitable habitat would be maintained for these species outside the harvest units. They are not discussed further.

Sitka Black-tailed Deer

The Sitka black-tailed deer was chosen as an MIS because it is an important game and subsistence species and is associated with old-growth forests. Deer habitat effects were calculated at the WAA level based upon home range size and deer/wolf relationships. Research conducted in Southeast Alaska indicates that high-volume, mature forests at lower elevations are needed to sustain deer populations during winters with deep snowfall (Schoen et al. 1985; Hanley and Rose 1987; Yeo and Peek 1992). Recent work in Southcentral Alaska by Doerr et al. (2005) reconfirmed deer were selecting high volstrata, low-elevation stands on south aspects during periods of heavy snowfall. Large, strong branches of mature stands intercept snow and maintain available forage. Productive, higher-volume stands of old-growth forests support the largest biomass of herb and shrub forage (Alaback 1982). Deer populations are impacted by the combination of deep-snow winters and large amounts of winter range converted to second growth. Snow reduces or eliminates forage availability in young clearcuts. Closed-canopy young-growth stands provide little forage in all seasons.

The project area falls into State Game Management Unit (GMU) 1B. Hunters are each allowed two bucks in this area, with a season from August 1 to December 31. Records indicate that historic use of the project area for deer harvest has been low and recent subsistence hearings and public comment have confirmed findings. The average reported annual harvest in WAA 1817 from 1987-1995 was 24 deer (Forest Plan FEIS map packet). Average reported harvest between 1996 and 2002 was seven deer/year; zero deer have been reported since 2002. See the Subsistence section of this chapter for additional information on human/deer interactions.

An interagency model (DeGayner 1996) was developed to evaluate the potential quality of winter habitat for Sitka black-tailed deer. The model was developed as a tool to assess the effects of action alternatives compared to no action, and future habitat suitability and capability of the WAA (Cole 2005). The model was updated to use 100 deer/mi² as a multiplier based upon work by Person et al. (1997). The model calculates habitat suitability indices (hsi) based on timber volume strata, aspect, elevation, and typical snowfall. High volstrata productive old growth (POG) with south aspects, at lower elevation, and in low snowfall areas are assumed to provide the best deer winter range. This corresponds with recent findings in Doerr et al. (2005). The model was run for Emerald Bay using the 100 deer/mi² multiplier and no predation for deer habitat capability and deer density, as directed by the Forest Supervisor's May 25, 2005 letter. The 36 percent wolf predation factor was applied when calculating hunter demand (Subsistence section). Partially harvested units were assigned the same hsi value as clearcut units based upon the silvicultural post-sale projections. Based on the input, the model calculated the current deer habitat capability (DHC) for WAA 1817 at 2,189. Because there has been little human- or naturally induced large-scale disturbance, habitat capability for deer

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has probably remained about the same over the last 100 years. Past harvest had minimal impact on deer harvest (see description of harvested area in Fisheries section).

Marten

The marten was selected as an MIS because of its association with lower-elevation old growth. Marten are the most important furbearer trapped in GMU 1B (Lowell 2004) and are endemic to the Cleveland Peninsula. The Forest Plan FEIS (pgs. 3-354 and 360) identifies high-value marten habitat as high volstrata, old-growth forest below 1,500 feet elevation. Coastal beach fringe and riparian areas have very high values. Cavities in large boles of trees and snags, hard downed logs, and beneath tree roots are most important for natal dens. Marten were analyzed at the VCU level (refer to Forest Plan FEIS, page 3-398). The project area currently contains 2,084 acres of old-growth forest meeting the criteria for high-value marten habitat.

Marten are easily trapped and can be over-harvested, especially where trapping pressure is heavy and not effectively controlled. There are currently no roads in the project area.

Currently, in GMU 1B, the open trapping season is from December 1 to February 15 with no limit on the numbers harvested. Records indicate that historic use of the project area for marten harvest has been low. Most trapping pressure in Unit 1B is from Meyers Chuck, Wrangell, and Petersburg, but trappers must cross large expanses of open water to access the mainland. Since access is restricted to boats, trapping pressure and harvest fluctuate annually and are influenced by weather and pelt price. Based upon information from trappers, marten populations in Unit 1B are believed to be common to abundant and stable (Lowell 2004). Harvest within WAA 1817 averaged slightly over 13 marten/year from 1999-2004; individual years ranged from 0 to 27 marten/year (Porter 2005).

An interagency model (Suring et al. 1992) was developed to evaluate and compare the potential quality of habitat for marten. The model uses habitat suitability indices based on timber volume strata, elevation, and typical snowfall to calculate a marten habitat capability. The model was updated for the Forest Plan using 2.7 marten per square mile as the multiplier; the updated model was used for this project. The Emerald Bay project area currently has a marten habitat capability of 17.6. Because there has been little human- or naturally induced large-scale disturbance, habitat capability for marten has probably remained about the same over the last 100 years.

Brown Bear

The brown bear is a habitat generalist associated with habitat from sea level to alpine. The late-summer season, when bears concentrate along low-elevation valley bottoms and streams, has been identified as the most critical or limiting period. Estuaries and riparian areas with anadromous fish have the highest habitat value (Forest Plan FEIS 3-354). The estuary and anadromous portion on Emerald Creek provides quality late-summer foraging. The grassy tideflats along the estuary are important in the spring when bears first emerge and are feeding primarily on grasses.

Currently, hunting regulations for brown bear in Unit 1B include a season from September 15 to December 31, with allowance for one bear per hunter every 4 regulatory years. Hunting pressure is low. The long-term average (1985-2001) for Unit 1B harvest is five bears per year (Porter 2003b). Harvest within WAA 1817 for 1999-2004 averaged less than one brown bear/year (Porter 2005).

Mountain Goat

The mountain goat is associated with cliffs, alpine, subalpine, and old-growth forested habitat. Goats on the Cleveland Peninsula occur in sub-populations over a large area. Females with kids, and immature animals, are generally found in small, geographically isolated groups. Females are sedentary with small home ranges and seldom migrate to other ridges. Adult males may form small bachelor groups, but are segregated from other age classes except during the rut. Males may wander considerable distances in search of receptive females (Smith and Raedeke 1982).

The project area lies between the Vixen Inlet/south Cleveland population and the Table Mountain/Twin Rift/Frosty Bay populations to the north. There are no known kidding, nursery, or winter concentration areas within the project area. Males may occasionally move through the area during the breeding season (late-October and mid-December), but the amount of use is not known. Genetic studies are currently being done on Cleveland and mainland populations to determine genetic variation (B. Porter, personal communication). Without this information, a conservative approach was taken for this analysis and potential goat habitat analyzed.

Goat habitat on the Cleveland Peninsula generally occurs in small, isolated patches and is limited in most areas. Studies on the Cleveland Peninsula found that the distance to cliffs was the most limiting factor in determining goat use of the area. Escape terrain was defined as slopes $\geq 50^\circ$ (120 percent) with a surface broken up by rock outcroppings. Over 90 percent of radio-collared goat locations were within 1,300 feet of escape terrain (high-use areas); winter use near Ketchikan included subalpine and lower-elevation old-growth forest in close proximity to escape terrain (Smith and Raedeke 1982, Fox et al. 1989). The ability of goats to survive harsh winters is influenced by their nutritional condition leaving the summer range and the quality and quantity of forage in goat winter range. According to GIS slope data, there are 24 acres of escape terrain within VCU 7210 (slopes greater than 50 degrees). This is 0.3 percent of the project area. These areas, in combination with productive old-growth stands within 1,300 feet of escape terrain, cover 781 acres, or 10 percent of the VCU. There are 132 acres of non-productive old growth and non-forested habitat and 6 acres of freshwater lakes also occurring within high-use areas.

The State goat season on Cleveland Peninsula south of the Yes Bay/Santa Anna divide was closed by Emergency Order in 2001 and 2002. Both the Alaska Board of Game and the Federal Subsistence Board closed the season in 2003 due to conservation concerns. The season remains closed; therefore, hunting is not an issue. No goats have been harvested within WAA 1817 in recent years.

Forest Plan direction is to maintain productive mountain goat habitat and minimize disturbance from aircraft by maintaining a 1,500-foot distance from summer and kidding habitat and from animals. This includes helicopter-yarding operations (Forest Plan 4-117).

Bald Eagle

Southeast Alaska has the highest density of bald eagles in North America. In Southeast Alaska, bald eagles represent a species that depends on old-growth beach fringe or riparian habitat. Over 90 percent of the nests are within 500 feet of saltwater.

The Bald Eagle Protection Act provides for special management for bald eagles. The USFWS and the Forest Service maintain an interagency agreement for bald eagle habitat management in the Alaska Region, which includes standards and guidelines for regulating human disturbance within identified bald eagle use areas. These bald eagle and riparian Forest-wide Standards and Guidelines are specifically designed to protect bald eagle nesting habitat. This agreement (MOU) with the USFWS states that all bald eagle nests will be considered active from March 1st until at least May 15th and that the 330-foot management zone will be maintained even if the nest is inactive. Land use activities inconsistent with current bald eagle use are excluded from this zone. Repeated flights by helicopters are to be avoided within $\frac{1}{4}$ mile of active nests. Blasting is restricted within $\frac{1}{2}$ mile of nests March 1 to May 31, or until August 31 if the nest is active.

Surveys in June 2000 found three nests located at or near the mouth of Emerald Bay (USFWS 2000). One additional nest is present toward the south end of the project area, one nest occurs on Easterly Island, and over two-dozen nests are mapped in the vicinity of Vixen Inlet. No nests were found immediately north of Emerald Bay, but approximately 10 nests are present in the Sunny Bay area. Aerial surveys of the Emerald nests in the summer of 2001 located two of the nests. They appeared dilapidated and unused (Spiering and Zelenak, 2001). The third nest

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was not located. One nest was located during road review in 2005; it is located directly behind the proposed LTF. No activity was observed within the vicinity of Emerald Bay. Additional surveys were completed in June 2005. An eagle was observed in the nest nearest the proposed LTF. It was difficult to see into the second nest, but an eagle was perched nearby and was very vocal when the nest was approached on foot. From these indicators, both nests are considered active.

Alexander Archipelago Wolf

This species uses a variety of vegetative communities throughout the year that equates to habitat of prey species. They use old growth for denning. The primary prey in Southeast Alaska is deer, but mountain goats are important in some mainland areas (Lowell 2003b). Beaver, small mammals, and salmon are also used. The Forest Plan includes direction to maintain 13 deer/mile² to support wolves (Forest Plan 4-116). As a result of monitoring, this has been changed to 18 deer/mile² (Monitoring and Evaluation Report 2000). Based on the deer model, the WAA currently has a habitat to support a density of 21.9 deer/mile². Hunting, trapping, and illegal poaching accounts for a high percentage of mortality in wolves. Mortality was correlated with the linear length of roads in WAAs (Person et al, 1996). No roads currently exist within the project area or WAA 1817.

Wolves are classified as both big game and furbearers. In GMU 1B they may be trapped from November 10 to April 30 under State regulations, with no limits on numbers taken. They may be hunted under State regulations from September 1 to March 31 with a limit of five wolves per hunter. Rural residents can harvest wolves under Federal Subsistence regulations from August 1 to April 30. All hides are required to be sealed. Nineteen wolves were taken off the Cleveland Peninsula during the winter of 2003/2004 suggesting the possibility of three separate wolf packs (B. Porter, pers. comm.). However, wolf harvest within the Unit 1B portion of Cleveland (Lowell 2003b) and WAA 1817 remains low. Three wolves were reported taken in WAA 1817 in 2003; no other wolves were reported from the WAA 1999-2002 or in 2004 (Porter 2005).

Brown Creeper, Hairy Woodpecker, Red Squirrel, Red-breasted Sapsucker

These are snag-dependent species associated with large old-growth trees. The brown creeper and hairy woodpecker are associated with high volstrata old growth. The sapsucker is associated with low to medium volstrata old growth and the red squirrel is associated with cone-bearing trees (POG) and trees with cavities for nesting. Current volstrata acres are displayed in Table Old Growth-1 in the Biodiversity and Old Growth section.

Red-tailed Hawk (Species of Interest)

During the 2000 field season, crews observed concentrated activity by raptors in Unit 10. A survey by wildlife biologists in August 2000 resulted in finding an active red-tailed hawk nest in Unit 10. Surveys in 2001 found that there was a pair suspected to be nesting in the area, but was not using the nest from the previous year (Spiering and Zelenak 2001). Additional surveys in the spring of 2002 found the 2000 nest was not occupied (Wilds, J. pers. comm.).

Environmental Consequences

Effects on MIS Habitat

Assumptions used in the analysis are that the normal operating season for timber harvest is from April 1 to October 31, and harvest activities could take up to 5 seasons to complete. Effects were based upon field information, approved versions of models, professional knowledge, and literature review. Although each action alternative includes harvest of forested wildlife habitat, some key habitats are protected by Forest Plan Standards and Guidelines. The majority (67 percent) of the project area is designated as a medium Old-growth Habitat Reserve. All coastal lowlands occur within the OGR. There would be no measurable impact to waterfowl or shorebirds, since no concentration areas occur within the project area (Forest Plan 4-114 & 4-115). No herons were reported or rookeries found (Forest Plan 4-116). Marbled

murrelet are commonly sighted in the waters adjacent to the project area, but no nests were recorded (Forest Plan 4-117). Four mice and two voles were captured during small mammal trapping in 1998; no species of concern were noted. In light of the above information, these species are not discussed further. Impacts to MIS species are discussed in detail below.

Sitka Black-tailed Deer

There would be no impact to deer under Alternative A. Alternatives B, C, and D would each reduce severe winter deer habitat within WAA 1817 by approximately 1 percent. This would not have an appreciable impact on deer populations. The low-elevation coastal habitat is protected by the OGR. More substantial impacts to deer populations could result from the increased number of hunters during the life of the sale since normal timber operating seasons overlap with current deer seasons. Since the sale is estimated to take up to 5 seasons to complete, this would be a short-term impact.

Sitka black-tailed deer inhabit the Unit 1B mainland in low densities. The Cleveland Peninsula is occasionally hit by severe winters with deep snowfall. The most severe winters were back-to-back seasons in 1970-71 and 1971-72. The latest one occurred in 1998-99. Like the majority of the Unit 1B mainland, deer populations on Cleveland Peninsula are currently low. Wolf and black bear predation is likely keeping the Cleveland Peninsula deer herd from rebounding (Porter 2003a, Lowell 2003a). The deer model estimates deer habitat capability (dhc) during the winter. Deer model outputs were designed for comparing relative changes by alternative rather than indicating actual effects to deer populations. Table Wildlife-1 displays the habitat capability that would remain following implementation of the action alternatives as compared to the existing habitat capability. Partial-harvest areas were modeled as clearcuts since 50 percent removal would create open stand conditions similar to low-volume or non-productive old-growth stands. While many of these areas would likely be used during mild winters, open stands do not provide suitable habitat during winters with high snow accumulation (Doerr et al. 2005).

Table Wildlife-1
Habitat Capability Changes for Sitka Black-tailed Deer over WAA 1817

	Historic	2005	Alt. A	Alt. B	Alt. C	Alt. D
DHC	2,191	2,190	2,190	2,168	2,169	2,169
% Change		0	0	-1	-1	-1

Source: L.LaPorta, 2003.

There would be no road effect on deer under Alternatives A and C. The proposed road in Alternatives B and D would have a short-term effect on deer. The road location through the OGR is in flat, low-elevation habitat. Segments would be located in moderate to high volstrata timber with large cedars or mixed spruce/hemlock that provide habitat during normal winters and some use during more severe winters. The road prism would have minimal effect on deer habitat. Deer utilize increased forage levels in habitat adjacent to induced edge during summers and mild winters. The potential for increased wind and snow would make this edge less desirable in severe winters. See Biodiversity section for further discussion of edge effect.

More-substantial impacts to deer populations could result from increased hunting pressure during the life of the sale. Since the hunting season opens August 1, construction workers and loggers would be in the area during the hunting season and deer harvest would increase over current levels. Because the sale is estimated to be completed within 5 years, this would be a short-term overlap, but it could take much longer for the herd to rebuild. Hunting pressure would likely return to current levels once the sale is complete. After the road is closed to motorized use, the roadbed would provide walk-in access to hunters until overgrown with vegetation. Some traditional use could shift further inland. However, because of the distance

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from population centers, and potentially rough sea conditions, long-term use is expected to be similar to current low levels. See the Subsistence section of this chapter for additional information.

Marten

High-value marten habitat would be reduced 12 to 13 percent under the action alternatives. Road impacts would be temporary. Neither impact is expected to substantially reduce marten populations within VCU 7210 or affect overall marten distribution. Detailed rationale is presented below.

The Forest Plan directs that Marten Standards and Guidelines will be applied to harvest occurring in high-risk biogeographic provinces. Emerald Bay is part of the Revilla Island/Cleveland Peninsula Biogeographic Province (Forest Plan FEIS 3-16 & 3-17). Revillagigedo Island and vicinity is identified as a high-risk biogeographic province (Forest Plan 4-118); therefore, Marten Standards and Guidelines apply to the Emerald Bay project. All harvest units containing high-value marten habitat are designed to be consistent with the Marten Standards and Guidelines (Forest Plan, pp. 4-118 to 4-119). High-value marten habitat is defined as high-volume strata old growth below 1,500 feet elevation. The following stand structural characteristics are to be met following timber harvest:

- Retain approximately 10-20 percent of the original stand structure.
- An average of at least four large trees/acre (20-30" DBH or greater) for future snag recruitment. Where not available, substitute the next largest trees.
- An average of at least three large decadent (dead or dying) trees/acre (20-30" DBH or greater). Where not available substitute the next largest decadent trees.
- An average of at least three pieces/acre down material (logs 20-30" or greater in diameter at the large end and 10' long), generally distributed throughout the harvest unit.
- Retained trees should have a reasonable assurance of windfirmness.
- Consider adding smaller or younger trees for future structure recruitment and to improve windfirmness.
- For timber harvest units less than or equal to 2 acres in size, in high-value marten habitat, allow full canopy removal but limit the number of openings to an equivalent of 25 percent of the stand removed every 50 years (e.g., 12-13, 2-acre openings; 25, 1-acre openings, etc. within a 100-acre stand).

The marten model was developed as a tool to assess the effects of action alternatives in comparison to no action. The model assigns habitat site index values to all habitat types and calculates a habitat capability for the area. The model does not evaluate the effects of roads; they are discussed separately below. Changes to high-value marten habitat acres and marten habitat capability are shown in Table Wildlife-2.

Table Wildlife-2
High-value Marten Habitat in VCU 7210

	2005	Alt. A	Alt. B	Alt. C	Alt. D
High-value marten habitat (acres)	2,084	2,084	1,829	1,819	1,819
Percent reduction	0%	0%	12%	13%	13%
Habitat capability	17.55	17.55	15.81	15.64	15.64
Percent reduction	0%	0%	10%	11%	11%

Source: Forest Service, NEAT volstrata harvest & marten model

The amount of timber harvest in high-value marten habitat is similar under all action alternatives. Even those units with partial-cut harvest would fall out of the high-value habitat component since they are no longer high-volume stands. Thus, any timber harvest in high-value marten habitat would reduce that habitat accordingly. Partial cuts would provide lower-quality habitat in the form of scattered large trees for denning sites; larger-diameter slash would provide habitat for some prey species over the short term. Timber harvest that would occur in the estuary buffer or medium OGR would include the road right-of-way, LTF, sortyard and camp, and rock pit clearing. This would remove some large-diameter trees that are potential denning sites. However, with minimal road clearing widths, this is not expected to severely limit available den sites. Additional marten habitat would be harvested in the road corridor between units within the Timber LUD. This amount is minor and would reduce high-value marten habitat less than 1 percent.

Studies on marten have shown that the main effects of roads are a result of increased access to trappers (Ruggerio et al. 1994). No roads would be constructed under Alternatives A and C. Road density within VCU 7210 would be 0.5 miles/mi² under Alternative B and 0.3 miles/mi² under Alternative D during the life of the sale. While the road under Alternatives B and D would provide trappers additional access, it is unlikely that the number of trappers would substantially increase during the years the sale is operational. The normal timber operating season occurs outside of the current trapping season. The project area is some distance from any population centers and can have dangerous winter water and landing conditions. According to Lowell (2004), weather and pelt price are the determining factors controlling trapping pressure. While data was not available for VCU 7210, trapping levels for the entire WAA averages 13 marten/year and has been 0 for 2 out of the last 6 years. The road would be closed to all motorized traffic at the end of the sale and the LTF would be removed. The physical presence of the road prism and clearing through the OGR should have no long-term effects on movements of marten on the peninsula. It is expected that alder would become reestablished within 10 to 20 years, and logs and stumps placed on the roadbed would provide cover for prey species.

Brown Bear

Since fisheries resources would be maintained and buffers utilized to protect important foraging habitat, minimal effects on brown bears are expected from the proposed timber harvest. Increased access during the life of the sale could have more substantial and longer-term impacts to the brown bear population.

Brown bears are habitat generalists and would take advantage of increased forage in harvested units. The late summer season is the most critical or limiting period for brown bear (Forest Plan 3-354). Both Boyd Porter (ADF&G) and Steve Brockman (USFWS) have indicated that the Emerald Bay area is important brown bear habitat (Reeck, J. pers. comm.). Emerald Creek fits criteria 4b in TPIT, Appendix A (Powell 1998). Participants in a botany field trip in the fall of 2003 noted numerous bear trails in and around the Emerald Creek/estuary. Therefore, the 500-foot buffer should be applied to the anadromous portion of Emerald Creek. The majority of the buffer falls within the beach/estuary buffer and the OGR. A small portion of Unit 12 (about 2-3 acres) is located within the 500-foot brown bear foraging buffer. Unit 12 would be adjusted during unit layout to maintain a 500-foot buffer along the anadromous portion of Emerald Creek.

Based on the fisheries analysis, no measurable effects to the fisheries resource are anticipated. The estuary buffer and the 500-foot brown bear buffer would maintain spring foraging habitat. As a result, no effects on the availability of foraging habitat for brown bears are expected.

There would be no facilities under Alternative A and no increase in potential human/bear interactions. Since no roads would be constructed under Alternative C, a floating camp would most likely be utilized. The contractor would have the option of either a floating or a land-based camp under Alternatives B and D. Due to economic constraints, it would not be feasible to locate a land camp more than 1 mile from the important foraging habitat in Emerald Creek.

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(Forest Plan 4-113). Land camps and other facilities within brown bear habitat are required to have incinerators and/or other bearproof garbage disposal methods. Food is required to be stored in ways that it is unavailable to bears to reduce habituation of bears and human/bear incidents (Forest Plan 4-113).

There is a high potential for increased brown bear mortality during the life of the sale. Current brown bear harvest is low (<1 bear/year for WAA 1817). Logging and road crews would be stationed in close proximity to important habitat and would have increased opportunity to hunt the area under Alternatives B, C, and D. Alternative C would have less impact since no roads are constructed; most hunting would occur along the beach and estuary. The roads in Alternatives B and D could lead toward a more substantial impact on brown bear populations. They would provide crews easy access into the interior of the project area and increase the chance of hunters encountering bears. Although the sale is expected to last less than 5 years, the number of bears harvested within that timeframe could have much longer-term impacts on brown bear populations. If over-harvest occurs, then the opportunity to hunt bears may be restricted through emergency closures, shortened seasons, or reduced bag limits. Although the road would be closed to all motorized use after the sale, the roadbed would increase walk-in access for hunters. However, the number of hunters is expected to return to current levels once the sale is complete.

All action alternatives would also include the use of helicopters. This could cause disturbance and temporary displacement of individuals in the area. However, this would be expected to be short term (during project activities) and bears would return to the area during periods of inactivity and once harvest activities are completed.

Mountain Goat

The Emerald Bay/Spacious Bay area lies between goat populations on the lower Cleveland Peninsula and mainland populations to the north. It is not known how much genetic interchange occurs between these populations; genetic studies are in progress. Because the hunting season for goats is closed, hunting has been removed as a source of mortality and increased access to hunters is currently not an issue. If the hunting season for goats was opened during or after project activities, the road could improve walk-in access. However, because of the distance from population centers, and potentially rough sea conditions, this use is expected to be minimal. No goat harvest was reported in WAA 1817 between 1999 and 2004 and goat habitat within the project area is limited. Therefore, concerns revolve around maintaining important goat habitat and potential travel corridors (Forest Plan 4-117).

Goats use "escape terrain" to avoid predators. Several large predators are known to hunt mountain goats, but wolves have been suggested as the most important (Fox *et al* 1989). The largest areas of escape terrain and high-use habitat within the project area occur within the OGR. No escape terrain (slopes greater than 50 degrees) would be harvested under any alternative. No harvest would occur in high-use habitat under Alternative A; Alternatives B, C, and D would each harvest 3 acres of low-volstrata POG in high-use areas and reduce total POG within high-use areas from 781 to 778 acres (<1 percent). The harvest occurs within Unit 11 near the southeast corner of the project area and is located at the outer fringe of the high-use area. Therefore, it would have minimal impact on goat use. Non-POG and non-forested habitat within high-use areas would remain at 132 acres.

A study in Alberta looked at mountain goat responses to helicopter disturbance (Cote 1996). They appeared to be more adversely affected when helicopters flew within 500 meters (1,640 feet). Eighty-five percent of flights within 500 meters caused the goats to move over 100 meters (Cote 1996). Groups that split up when fleeing reassembled within 28 to 48 hours. Once goats reached a cliff (escape terrain), they usually did not go further. Forest Plan direction includes maintenance of a 1,500-foot distance from summer and kidding habitat during helicopter yarding. While current information suggests that use of the project area during these periods is limited, this direction has been incorporated in case new information on use of the project area by mountain goats is discovered during project activities.

Implementing the action alternatives would have no impact on goat populations and a negligible impact on goat habitat.

Bald Eagle

Eagles and their nests are protected by the Bald and Golden Eagle Protection Act, the interagency MOU, and Forest Plan Standards and Guidelines. The 1,000-foot beach/estuary buffer protects important nesting, perching, and roosting habitat. The 330-foot no-disturbance zone agreed to in the MOU generally protects nests. While disruption to three nests could occur during project implementation, this would not affect the overall viability or distribution of bald eagles.

There would be no impact to eagles under Alternative A. Of the action alternatives, Alternative C would have the least impact since it does not construct a road or LTF. A variance to the MOU may be required for the repeated helicopter to barge yarding. Depending upon the contractor, there may be an opportunity to locate the barge to avoid the ¼-mile flight restriction around nests. Alternative C would likely have a floating camp; if located on the south shore of Emerald Bay, it would also be within the 330-foot zone. Alternatives B and D would have the greatest impact to bald eagles. The proposed road and LTF in Alternatives B and D is within 330 feet of a bald eagle nest tree. A variance to the MOU would be required and has been requested. A sortyard, helicopter servicing area, and possibly a land camp would be constructed for the land-to-barge operation. To make the sale economical, the only feasible location for these facilities is near the LTF; however, they would be required to be outside the 330-foot buffer. The only rock source located during road review in 2005 within 1 mile of the LTF is within the estuary buffer and the outer edge of the brown bear foraging buffer. Therefore, timing restrictions for blasting rock pits would be required.

Both nests were active on July 1, 2005. Responses to disturbance may vary from temporary temporal or spatial avoidance to total reproductive failure and abandonment of breeding areas. Responses vary depending on the type, intensity, and timing of the disturbance, (USFWS Bald Eagle Basics, no date). Yearly surveys would be done during the life of the sale to determine the status of the nests. If active, timing restrictions would continue through August 31; if not active, restrictions could be removed after May 31.

Alexander Archipelago Wolf

The current wolf status would be maintained under Alternative A. The project would have minimal effect on wolves under Alternatives B, C, and D and would not change overall wolf distribution.

Primary impacts on wolves are associated with changes in prey populations or distribution and increased access to hunters and trappers. Based on the analysis for deer, there would be very little change in habitat capability for deer within the area (see Table Wildlife-1). WAA 1817 currently has habitat to support a density of 21.9 deer/mile². After implementation of any of the action alternatives, it would be reduced to 21.7 deer/mile², but would still be above the Forest Plan standard/guideline of 18 deer/mile². There could be some displacement of deer and/or wolves during project activities. Low-elevation coastal deer winter range, which is considered the most limiting factor, is maintained within the OGR.

Studies have shown that the main effect of roads is increased access to humans and the increased chance of mortality (Person et al, 1996). The area is currently unroaded and would remain so under Alternatives A and C. Road densities for WAA 1817 would increase to 0.06 miles per square mile in Alternative B and 0.04 miles per square mile in Alternative D. Both alternatives would be within Forest Plan Standards and Guidelines. Following project activities the roads would be put into storage, and over the long-term, road densities would return to 0.0 miles per square mile as the road closes in with alder and other species. The roadbed is expected to be revegetated within 20 to 30 years. All alternatives comply with the Forest Plan Guideline of less than 0.7-1.0 road densities (Forest Plan 4-116). There would be increased vulnerability of wolves to hunting and trapping during the life of the sale. Afterwards, the

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roadbed would provide additional walk-in access to hunters. However, hunting and trapping pressure is expected to return to current low levels over the long term.

Brown Creeper, Hairy Woodpecker, Red Squirrel, Red-breasted Sapsucker

Snag habitat should not be a limiting factor in the project area as there has been no previous harvest. Retention of the medium OGR, estuary, and riparian buffers, as well as undeveloped portions of harvested units would maintain snag habitat across VCU 7210.

Current habitat would be maintained under Alternative A. Habitat for brown creepers and hairy woodpeckers would be reduced by 12 percent in Alternative B and 13 percent in Alternatives C and D, as the treated stands would not be high-volume stands after harvest. Currently, 30 percent of the project area is high-volstrata POG; after implementation of any of the action alternatives, 27 percent of the project area would be high-volstrata POG (see Table Biodiversity 3-3).

Partially harvested stands would maintain cone-bearing trees for red squirrels. Alternatives A and C would maintain the current 5,257 acres of habitat. Alternative D would reduce habitat less than 1 percent due to road right-of-way harvest. Alternative B would reduce habitat by 8 percent. Clearcut units would not provide habitat except within high-value marten habitat areas. Alternative A would maintain red-breasted sapsucker habitat. Alternative B would reduce habitat by 3 percent; clearcuts in medium and low volstrata would offset partial harvest in high-volstrata units. Habitat for red-breasted sapsuckers would potentially increase by 9 percent under Alternatives C and D as high-volstrata stands are converted to more-open stands through partial cutting.

Red-tailed Hawk (Species of Interest)

If the known nest, or another nest is found to be occupied, it would be protected with a forested 600-foot windfirm buffer. Activities that would disturb red-tail hawks would be restricted during the active nesting season (generally March 1 to July 31). Annual monitoring would be conducted for at least 2 years to determine nest activity. If the nest remains inactive for 2 consecutive years, protection measures may be removed.

Cumulative Effects

Cumulative effects on all MIS species are expected to be minor. Localized impacts would occur from timber harvest, but habitat loss within WAA 1817 would be ≤ 2 percent. Road construction would also cause localized impacts, but impacts would be of relatively short duration (20-30 years). No other roads are proposed within the WAA in the foreseeable future.

The only known ground-disturbing activity that has occurred in VCU 7210 is the harvest in the 1930s. WAA 1817 is large enough to provide the habitat requirements of most species and therefore was selected as the cumulative effects boundary for most wildlife; exceptions are deer, brown bear, and wolf. The cumulative effects boundary for these species addresses migration between the mainland and lower Cleveland Peninsula. Ongoing activities within the WAA include mining exploration in the vicinity of Mt. Burnett/Cannery Creek. Work has not progressed beyond the exploration stage and no plans of operation have been filed.

Approximately 590 acres of State land are present at Vixen Harbor/Union Point. The land is to be managed for dispersed and marine oriented recreation (DNR 2000). Two parcels of private land occur within WAA 1817 south of Vixen Inlet. They are used as private residences. Commercial and recreational fishing occurs in the waters adjacent to the project area; these activities are ongoing and would not have a measurable impact on any MIS species. There are no additional timber sales within WAA 1817 in the foreseeable future. Timber harvest is projected for the adjacent Sunny Bay area (WAA 1816) with a tentative NEPA decision date of 2009. Some initial road reconnaissance was completed in 1984, but no other work has been done to date. That EIS would be responsible for including the combined effect of the two sales.

The State of Alaska Central/Southern Southeast Alaska Area Plan (DNR 2000) identified the Spacious Bay-Ernest Sound area as a "bio-geographical pinchpoint". The distance across from Emerald Bay to Spacious Bay is approximately 5 miles (linear distance); the area available for harvest is 1.75 miles wide and occurs in the west central area of the pinchpoint (Refer to Figure

1-1). Concern was expressed by the State over fragmenting this narrow isthmus through logging and road construction and thereby affecting the viability of certain species (deer, bear, wolf) on the lower Cleveland Peninsula (DGC letters 5/8/2000, 1/19/2001). Pinchpoint effects are addressed individually under the appropriate species section below.

Sitka Black-tailed Deer

There would be no change to deer habitat under Alternative A. Effects on deer habitat would be the same as project effects for the action alternatives (1 percent reduction). This would not affect the viability or distribution of deer. The medium OGR along the west coast and small OGRs in VCU 7200 and 7220 (see Figure 3-1) maintain connections to both lower Cleveland Peninsula and the mainland. In addition, deer commonly travel through muskegs; these travel routes would be maintained between the harvest units and provide linkage between the medium and small OGRs. The road through the OGR in Alternatives B and D would not restrict deer movement.

Marten

Within WAA 1817, high-value marten habitat would be reduced by 2 percent under all action alternatives. No change would occur under Alternative A. No other roads are present or proposed in the foreseeable future within WAA 1817. Therefore, there would be no cumulative increase in trapper access. Trapping pressure would continue to fluctuate based upon weather and pelt price.

Brown Bear

Brown bear movements would not be restricted through the "pinchpoint". Bears are habitat generalists and are not tied to specific vegetative cover. The medium OGR and adjacent small OGR in VCU 7220 protects the lowland coastal habitat (except for the Emerald Bay road) on both sides of the pinchpoint and lowland habitat along Wasta Creek. A large unnamed stream flows south through the small OGR and empties into the northwest corner of Spacious Bay; the lower segment is anadromous habitat. This stream (and the small OGR) connect to WAA 1816, the large, unnamed anadromous creek that flows northwest into the Sunny Bay area, and the large riparian system above Santa Anna Inlet. Riparian buffers are required on all Class I, II, and III streams. These areas all provide access to the mainland.

A 500-foot brown bear buffer is maintained along the anadromous habitat of Emerald Creek (with the added mitigation to modify Unit 12), which provides a riparian travel corridor into the Wasta Creek drainage, and the remainder of Cleveland Peninsula. Since routes are maintained to the north and to the south and the medium and small OGRs maintain an east-west link along Wasta Creek, there should be no restriction on the ability of brown bears to move between the mainland and Cleveland Peninsula under any of the alternatives.

Mountain Goat

Cumulative effects to mountain goats within WAA 1817 result from mining exploration in the Mt. Burnett vicinity. Goats are known to occur on the ridge that encompasses Mt. Burnett and South Mountain. Thirteen goats were observed during surveys in 2003. Impacts include temporary displacement. There would be no cumulative impact on goats.

Bald Eagle

There are 57 mapped eagle nests within WAA 1817. All are within the beach/estuary buffer and protected by standards and guidelines. No cumulative impacts to bald eagles would occur.

Alexander Archipelago Wolf

Wolves are also habitat generalists whose movement would not be restricted. They would likely use many of the riparian routes described above and elevational corridors through the medium and small OGR. Movements would be tied to deer and mountain goat locations. No cumulative impacts are expected. Future road building projects would need to access their cumulative effect on wolf populations and habitat.

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Brown Creeper, Hairy Woodpecker, Red Squirrel, Red-breasted Sapsucker

There are currently 14,819 acres of brown creeper and hairy woodpecker habitat in WAA 1817, 35,336 acres of red squirrel habitat, and 20,517 acres of red-breasted sapsucker habitat. No change would occur to these species under Alternative A.

Brown creeper and hairy woodpecker habitat in WAA 1817 would decrease by 2 percent under all action alternatives. Red squirrel habitat would decrease by 1 percent under Alternative B and would not change under partial cutting in Alternatives C and D. Red-breasted sapsucker habitat would be reduced by less than 1 percent.

Although there would be small, localized areas without snags within the Emerald Bay clearcuts under Alternative B, abundant snags are present in the remainder of WAA 1817 which would maintain overall cavity nester populations and distribution.

Mining exploration would have no cumulative effect on cavity nester populations.

Migratory Bird Treaty Act and EO 13186

The Migratory Bird Treaty Act of 1918 (amended in 1936 and 1972) prohibits the taking of migratory birds, unless authorized by the Secretary of Interior. Migratory birds treaties were developed between the United States, Great Britain, Mexico, and Japan in order to manage the resource. The law provides the primary mechanism to regulate waterfowl hunting seasons and bag limits, but includes other species. Over 100 species of birds migrate from the lower 48 to Alaska to breed, nest, and fledge their young. Most of these birds summer in interior or northern Alaska, and only migrate through the project area on the way to their breeding grounds. There are small numbers of birds, however, that stopover here.

Of the 44 neotropical migratory birds potentially found on the Tongass National Forest, only 14 use hemlock/spruce/cedar forest as their primary habitat (see project file). Eleven of the 14 are considered common or abundant; two are considered uncommon, and one a rare migrant.

None of the alternatives are anticipated to have a measurable direct, indirect, or cumulative effect on any migratory bird species, although individuals and their nests may be impacted. These impacts are expected to be minimal and of short-term duration.

Mitigation

No project-specific mitigation identified.

Monitoring

An occupied red-tailed hawk nest was found in the northern portion of Unit 10. Occupancy surveys would be conducted annually. The seasonal restriction around occupied nests is March 1st to July 31st. Applicable standards and guidelines (600-foot windfirm buffer) would be applied as long as the nest remains occupied.

Bald eagle nest monitoring would occur during the life of the sale.

Chapter 4

Lists

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Lists

Preparers

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Glossary

Access

The opportunity to approach, enter, and make use of public lands.

Access Management

Acquiring rights and developing and maintaining facilities needed by people to get to and move through public lands (physical attributes).

Alaska National Interest Lands Conservation Act (ANILCA)

Passed by Congress in 1980, this legislation designated 14 National Forest Wilderness areas in Southeast Alaska. The Alaska National Interest Lands Conservation Act of December 2, 1980, Public Law 96-487, 96th Congress, 94 Stat. 2371-2551, Section 810 requires evaluations of subsistence impacts before changing the use of these lands.

Alaska Native Claims Settlement Act (ANCSA)

Public Law 92-203, 92nd Congress, 85 Stat. 2371-2551. Approved December 18, 1971, Native Claims Settlement Act (ANCSA). ANCSA provides for the settlement of certain land claims of Alaska Natives and for other purposes.

Alluvial Fan

A cone-shaped deposit of organic and mineral material made by a stream where it runs out onto a level plain or meets a slower stream.

Alpine

Parts of mountains above tree growth and/or the organisms living there.

Alternative

One of several policies, plans, or projects proposed for decision making.

Anadromous Fish

Anadromous fish (such as salmon, steelhead, and sea-run cutthroat trout) are fish that spend part of their lives in freshwater and part of their lives in saltwater.

Aquatic Habitat Management Unit

See Stream Classes

Background

The distant part of a landscape. The seen or viewed area located from 3 or 5 miles to infinity from the viewer. (See "Foreground" and "Middleground".)

Beach Fringe

The area inland from salt water shorelines, which is typically forested.

Best Management Practice (BMP)

Practices used for the protection of water quality. BMPs are designed to prevent or reduce the amount of pollution from nonpoint sources or other adverse water quality impacts while meeting other goals and objectives. BMPs are standards to be achieved, not detailed or site-specific prescriptions or solutions. BMPs as defined in the USDA Forest Service Soil & Water Conservation Handbook are mandated for use in Region 10 under the Tongass Timber Reform Act.

Biological Diversity (Biodiversity)

The variety of life in all its forms and at all levels. This includes the various kinds and combinations of genes, species of plants, animals, and microorganisms, populations, communities, and ecosystems. It also includes the physical and ecological processes that allow all levels to interact and survive. The most familiar level of biological diversity is the species level, which is the number and abundance of plants, animals, and microorganisms.

Blowdown

See Windthrow.

Board Foot (BF)

A unit of wood 12" X 12" X 1". One acre of commercial timber in Southeast Alaska on the average yields 28,000-34,000 board feet per acre (ranging from 8,000-90,000 board feet per acre). One million board feet (MMBF) would be the volume of wood covering 1 acre 2 feet thick. One million board feet yields approximately enough timber to build 120 houses or 75,555 pounds of dissolving pulp.

Buffer

An area around a resource where timber harvest is restricted or prohibited. For example, the Tongass Timber Reform Act (TTRA) requires that timber harvest be prohibited in an area no less than 100 feet on each side of all Class I streams and Class II streams which flow directly into Class I streams. This 100-foot area is known as a "stream buffer".

CCF

One-hundred cubic feet net sawlog and utility volume.

Capability

An evaluation of a resource's inherent potential for use.

Clearcut

The harvesting in one cut of all trees on an area. The area harvested may be a patch, strip, or stand large enough to be mapped or recorded as a separate class in planning for sustained yield. Clearcut size on the Tongass National Forest is limited to 100 acres.

Code of Federal Regulations (CFR)

A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

Commercial Forest Land (CFL)

Productive Forest land that is producing or capable of producing crops of industrial wood and is not withdrawn from timber utilization by statute or administrative regulation. This includes areas suitable for management and generally capable of producing in excess of 20 cubic feet per acre of annual growth or in excess of 8,000 board feet net volume per acre. It includes accessible and inaccessible areas.

Normal CFL: Timber that can be economically harvested with locally available logging systems. Composed of two categories:

Standard: Timber that can be economically harvested with locally available logging systems, such as highlead or short-span skyline.

Special: Timber that is in areas where special consideration is needed to protect other resources but can be harvested with locally available logging systems.

Non-standard CFL: Timber that cannot be harvested with locally available logging systems and would require the use of other logging systems such as helicopter or long-span skyline.

Commercial Thinning

Thinning a stand where the trees to be removed are large enough to sell.

Connectivity

A measure of the extent that forest areas between or outside reserves provide habitat for breeding, feeding, dispersal, and movement.

Corridor

Connective links of certain types of vegetation between patches of suitable habitat which are necessary for certain species to facilitate movement of individuals between patches of suitable habitat. Also refers to transportation or utility rights-of-way.

Cover

Refers to trees, shrubs, or other landscape features that allow an animal to partly or fully conceal itself.

4 Lists

Critical Habitat

Specific terrain within the geographical area occupied by threatened or endangered species. Physical and biological features that are essential to conservation of the species and which may require special management considerations or protection are found in these areas.

Crown

The tree canopy. The upper part of a tree or woody plant that carries the main branch system and foliage.

Cubic Foot (CF)

Equivalent to a cube of wood with 1-foot sides. The cubic foot volume is a measure of the total sound wood in a tree and is a more accurate depiction of wood volume than the board foot measure.

Cull Logs

Trees that do not meet certain quality specifications.

Cumulative Effects

The impacts on the environment resulting from additional incremental impacts of past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions occurring over time.

Developed Recreation

Recreation that requires facilities that, in turn, result in concentrated use of an area. Facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, and buildings.

Diameter Breast Height (DBH)

The diameter of a tree measured 4 feet 6 inches from the ground.

Direct Employment

The jobs that are immediately associated with the timber sale, including, for example, logging, sawmills, and pulp mills.

Dissolved Oxygen

The amount of free (not chemically combined) oxygen in water.

Diversity

The distribution and abundance of different plant and animal communities and species within the area controlled by the Forest Plan.

Draft Environmental Impact Statement (Draft EIS)

A statement of environmental effects for a major Federal action which is released to the public and other agencies for comment and review prior to a final management decision. Required by Section 102 of the National Environmental Policy Act (NEPA).

Eagle Nest Tree Buffer Zone

A 330-foot radius around eagle nest trees established in an agreement between the U.S. Fish and Wildlife Service and the Forest Service.

Ecosystem

A community of organisms and its physical setting. An ecosystem, whether a fallen log or an entire watershed, includes resident organisms, non-living components such as soil nutrients, inputs such as rainfall, and outputs such as organisms that disperse to other ecosystems.

Effects

Effects, impacts, and consequences as used in this environmental impact statement are synonymous. Effects may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, or social, and may be direct, indirect, or cumulative.

Direct Effects: Results of an action occurring when and where the action takes place.

Indirect Effects: Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future.

Cumulative Effects: See Cumulative Effects.

Endangered Species

Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as Endangered in accordance with the 1973 Endangered Species Act. See also Threatened Species, Sensitive Species.

Endemic

Restricted to a particular locality. For example, a particular species or subspecies may occur on only one or a very few islands.

Erosion

The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities.

Estuary

For the purpose of the EIS process, estuary refers to the relatively flat, intertidal, and upland areas generally found at the heads of bays and mouths of streams. They are predominately mud and grass flats and are unforested except for scattered spruce or cottonwood.

Even-aged Management

Even-aged systems produce stands that consist of trees of the same or nearly the same age. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of that age of the stand at harvest rotation age. Clearcut, shelterwood, or seed-tree cutting methods produce even-aged stands.

Executive Order

An order or regulation issued by the President or some administrative authority under his or her direction.

Final Environmental Impact Statement (Final EIS)

The final version of the statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act. It is a revision of the draft environmental impact statement (Draft EIS) to include public and agency responses to the draft. The decision maker chooses which alternative to select from the Final EIS, and subsequently issues a Record of Decision (ROD).

Floodplain

That portion of a river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages.

Foreground

The stand of trees immediately adjacent to a scenic area, recreation facility, or forest highway, located less than 1/4 mile from the viewer. See also Background and Middleground.

Forest or Forest Land

National Forest System lands currently supporting or capable of supporting forests at a density of 10 percent crown closure or better. Includes all areas with forest cover, including old growth and second growth, and both commercial and non-commercial forest land.

Forest Plan

The Tongass Land Management Revision, signed in 1997. This is the 10-year land allocation plan for the Tongass National Forest that directs and coordinates planning, the daily uses, and the activities carried out within the Forest.

4 Lists

Fragmentation

An element of biological diversity that describes the natural condition of habitats in terms of the size of discrete habitat blocks or patches, their distribution, the extent to which they are interconnected, and the effects of management on these natural conditions. Also the process of reducing the size and connectivity of stands within a forest.

Forested Wetland

A wetland whose vegetation is characterized by an overstory of trees that are 20 feet or taller.

FSH

Forest Service Handbook.

FSM

Forest Service Manual.

Geographic Information System (GIS)

GIS is a system of computer maps with corresponding site-specific information that can be electronically combined to provide reports and maps. This information-processing technology is used to input, store, manipulate, analyze, and display spatial and attribute data to support the decision-making process.

Geomorphology

The study of the forms of the land surface and the processes producing them. Also the study of the underlying rocks or parent materials and the landforms present which were formed in geological time.

Groundwater

Water within the earth that supplies wells and springs.

Guideline

A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.

Habitat

The sum total of environmental conditions of a specific place occupied by an organism, population, or community of plants and animals.

Habitat Capability

The number of healthy animals that a habitat can sustain. Used in wildlife models to calculate rough population estimates for management indicator species.

Heritage Resources (Cultural Resources)

Historic or prehistoric objects, sites, buildings, structures, and their remains, resulting from past human activities.

Interdisciplinary Team (IDT)

A group of people with different backgrounds assembled to research, analyze, and write a project environmental impact statement. The team is assembled out of recognition that no one scientific discipline is sufficiently broad enough to adequately analyze a proposed action and its alternatives.

Issue

A point, matter, or section of public discussion or interest to be addressed or decided.

Land Use Designation

A defined area of land specific to which management direction is applied in the Forest Plan.

Landslides

The moderately rapid to rapid down slope movement of soil and rock materials that may or may not be water-saturated.

Large Woody Debris

Any large piece of relatively stable woody material having a diameter of at least 4 inches and a length greater than 3 feet that intrudes into the stream channel. Also called Large Organic Debris (LOD).

Log Transfer Facility (LTF)

Also known as Marine Access Facility. A facility that is used for transferring commercially harvested logs to and from a vessel or log raft, or the formation of a log raft. It is wholly or partially constructed in waters of the United States and location and construction are regulated by the 1987 Amendments to the Clean Water Act. Formerly termed "terminal transfer facility" or "log dump".

Logging Systems

Long-span cable: Single-span cable yarding system with a long corner exceeding 1000 feet, horizontal distance. Typically, this includes a variety of live skyline systems, including standing skylines and running skylines where reach is long.

Short-span cable: All cable systems with a longer corner of not more than 1,000 feet, horizontal distance. Typically, this includes running skyline with a carriage and chokers, running skyline with grapple, live skyline with gravity return, and highlead.

Shovel: The process of forwarding logs from stump to landing by repeated swinging of logs by a hydraulic excavator-based log loader.

Helicopter: Flight path cannot exceed 40 percent downhill or 30 percent uphill; landings must be selected so there is adequate room for the operation and so that the helicopter can make an upwind approach to the drop zone.

MBF

A thousand board feet net sawlog and utility volume.

MMBF

A million board feet net sawlog and utility volume.

Management Indicator Species (MIS)

Species selected in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish, including those that are socially or economically important.

Management Requirement

Standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, and soil and water and diversity, to be met in accomplishing National Forest System goals and objectives (see 36 CFR 219.17).

Mass Movement

The downslope movement of a block or mass of soil. This usually occurs under conditions of high soil moisture and does not include individual soil particles displaced as surface erosion.

McGilvery (Soil Series)

Soil series which represents the only well-drained organic soil found in the Ketchikan area. It is composed of a thin surface layer (less than 8 inches deep) of organic material overlying bedrock. These soils are associated with cliffs and rock outcrops, and are sensitive to disturbance.

Memorandum of Understanding (MOU)

A legal agreement between the Forest Service and others agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund-obligating document.

Middleground

The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly for the landscape; area located from 1/4 to 5 miles from the viewer. See also Foreground and Background.

Mineral Soils

Soils consisting predominately of, and having its properties determined by, mineral material.

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Mining Claims

A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit.

Mitigation

Measures designed to counteract environmental impacts or to make impacts less severe. These may include: avoiding an impact by not taking a certain action or part of an action; minimizing an impact by limiting the degree or magnitude of an action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or compensating for the impact by replacing or providing substitute resources or environments.

Mixed Conifer

In Southeast Alaska, mixed conifer stands usually consist of western hemlock, mountain hemlock, Alaska yellow-cedar, Western redcedar, and Sitka spruce species. Shore pine may occasionally be present depending on individual sites.

Model

A representation of reality used to describe, analyze, or understand a particular concept. A model may be a relatively simple qualitative description of a system or organization, or a highly abstract set of mathematical equations. A model has limits to its effectiveness, and is used as one of several tools to analyze a problem.

Monitoring

A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring can occur at different levels: to confirm whether mitigation measures were carried out in the manner called for, to determine whether the mitigation measures were effective, or to validate whether overall goals and objectives were appropriate. Different levels call for different methods of monitoring.

Multiple Use

The management of all the various renewable resources of the National Forest System to be used in the combination that will best meet the needs of the American people.

Muskeg

In Southeast Alaska, a type of bog that has developed over thousands of years in depressions or flat areas on gentle to steep slopes. Also called peatlands.

National Environmental Policy Act (NEPA) of 1969

An Act to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the Nation, and to establish a Council on Environmental Quality (The Principal Laws Relating to Forest Service Activities, Agricultural Handbook 453. USDA Forest Service, 359 pp.).

National Forest Management Act (NFMA)

A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

No-action Alternative

The most likely condition expected to exist in the future if current management direction were to continue unchanged.

Notice of Intent (NOI)

A notice printed in the Federal Register announcing that an environmental impact statement will be prepared. The NOI must describe the proposed action and possible alternatives, describe the agency's proposed scoping process, and provide a contact person for further information.

Objectives

The precise steps to be taken and the resources to be used in achieving goals.

Offering

A Forest Service specification of timber harvest units, subdivisions, roads, and other facilities and operations to meet the requirements of a contract.

Old Growth

Ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of forest stand development that typically differ from earlier stages in a variety of characteristics which may include larger tree size, higher composition, and different ecosystem function. The structure and function of an old-growth ecosystem will be influenced by its stand size and landscape position and context.

Organic Soils

Soils that contain a high percentage (generally greater than 20 to 30 percent) of organic matter throughout the soil depth.

Parent Material

The unconsolidated and partially weathered material from which upper layers of soil developed.

Partial Cut

Method of harvesting trees where any number of live stems are left standing in any of various spatial patterns. This does not include clearcutting. Can include seed tree, shelterwood, or other methods.

Patch

A non-linear surface area differing in appearance from its surroundings.

Payments to States

Prior to 2000, a fund consisting of approximately 25 percent of the gross annual timber receipts received by the National Forests in that State, returned to the State for use on roads and schools. It was replaced in October 2000 by the *Secure Rural Schools and Community Self Determination Act of 2000* (commonly referred to as "Payments to States" legislation), enacted to stabilize Federal payments to states in response to declining Federal receipts.

Peak Flow

The highest discharge of water recorded over a specified period of time at a given stream location. Often thought of in terms of spring snowmelt, summer, fall, or winter rainy season flows. Also called maximum flow.

Planning Area

The area of the National Forest System controlled by a decision document.

Planning Record

A system that records decisions and activities that result from the process of developing a forest plan, revision, or significant amendment.

Plant Communities

Aggregations of living plants having mutual relationships among themselves and to their environment. More than one individual plant community.

Population Viability

Ability of a population to sustain itself.

Process Group

A combination of similar channel types based on major differences in landform, gradient, and channel shapes.

Productive Old Growth (POG)

Old-growth forest capable of producing at least 20 cubic feet of wood fiber per acre per year, or having greater than 8,000 board feet per acre.

Public Participation

Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service activities.

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Record of Decision

A document separate from but associated with an environmental impact statement which states the decision, identifies all alternatives, specifying which were environmentally preferable, and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not.

Regeneration

The process of establishing a new crop of trees on previously-harvested land.

Regional Forester

The Forest Service official responsible for administering a single region.

Resident Fish

Fish that are not anadromous and that reside in freshwater on a permanent basis. Resident fish include non-anadromous Dolly Varden char and cutthroat trout.

Resource Values

The tangible and intangible worth of forest resources.

Responsible Official

The Forest Service employee who has the delegated authority to make a specific decision.

Revegetation

The re-establishment and development of a plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through the direct action of reforestation or reseeding.

Riparian Area

Area with distinctive resource values and characteristics that contain elements of aquatic and riparian ecosystems, which can be geographically delineated.

Roads

Classified: Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service (36 CFR 212.1).

Temporary: For National Forest System timber sales, temporary roads are constructed to harvest timber on a one-time basis. These logging roads are not considered part of the permanent forest transportation network and have stream crossing structures removed, erosion measures put into place, and the road closed to vehicular traffic after harvest is completed.

Roadless Area

An area of undeveloped public land within which there are no improved roads maintained for travel by means of motorized vehicles intended for highway use.

Rotation

The planned number of years (approximately 100 years in Alaska) between the time that a forest stand is regenerated and its next cutting at a specified stage of maturity.

Rotation Age

The age of a stand when harvested at the end of a rotation.

RPA Assessment and Program

The RPA Assessment is prepared every 10 years and describes the potential of the nation's forests and rangelands to provide a sustained flow of goods and services. The RPA Program is prepared every 5 years to chart the long-term course of Forest Service management of the National Forests, assistance to State and private landowners, and research. They are prepared in response to Sections 3 and 4 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (16 U.S.C. 1601).

Sawlog

That portion of a tree that is suitable in size and quality for the production of dimension lumber collectively known as sawtimber.

Scoping Process

Early and open activities used to determine the scope and significance of a proposed action, what level of analysis is required, what data is needed, and what level of public participation is appropriate. Scoping focuses on the issues surrounding the proposed action, and the range of actions, alternatives, and impacts to be considered in an EA or an EIS.

Scrub-Shrub Wetland

Wetlands dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. In Southeast Alaska this includes forested lands where trees are stunted because of poor soil drainage.

Second Growth

Forest growth that has become established following some disturbance such as cutting, serious fire, or insect attack; even-aged stands that will grow back on a site after removal of the previous timber stand.

Sediment

Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface.

Selection Harvest

The annual or periodic removal of trees (particularly the mature), individually or in small groups from an uneven-aged forest to achieve the balance among diameter classes needed for sustained yields, and in order to realize the yield, and establish a new crop of irregular constitution. The improvement of the forest is a primary consideration.

Sensitive Species

Plant and animal species which are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on a non-official State list, or that are recognized by the Regional Forester as needing special management to prevent placement on Federal or State lists.

Silviculture

The science of controlling the establishment, composition, and growth of forests.

Smolt

Young silvery-colored salmon or trout which move from freshwater streams to saltwater.

Snag

A standing dead tree, usually greater than 5 feet tall and 6 inches in diameter at breast height.

Soil Productivity

The capacity of a soil, in its normal environment, to produce a specific plant or sequence of plants under a specific system of management.

Soil Quality Standards

Standards that are a combination of 1) "threshold" values for severity of soil property alteration, or significant change in soil properties conditions, and 2) a real extent of disturbance.

Split Yarding

The process of separating the direction of timber harvest yarding into opposite directions.

Stand (Tree Stand)

An aggregation of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition as to be distinguishable from the forest in adjoining areas.

Standard

A course of action or level of attainment required by the Forest Plan to promote achievement of goals and objectives.

State Historic Preservation Officer (SHPO)

State-appointed official who administers Federal and State programs for cultural resources.

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Stocking

The degree of occupancy of land by trees as measured by basal area or number of trees and as compared to a stocking standard; that is, the basal area or number of trees required to fully use the growth potential of the land.

Stream Class (Aquatic Habitat Management Unit)

A mapping unit that displays an identified value for aquatic resources. It is a mechanism for carrying out aquatic resource management policy. Also known as Aquatic Habitat Management Unit (AMHU).

Class I: Streams and lakes with anadromous or adfluvial fish habitat, or high-quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat Management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.

Class II: Streams and lakes with resident fish populations and generally steep (6-15 percent) gradient (can also include streams from 0-5 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. These populations have limited fisheries values and generally occur upstream of migration barriers or have other habitat features that preclude anadromous fish use.

Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow or transport sufficient sediment and debris to have an immediate influence on downstream water quality or fish habitat capability. These streams generally have bankfull widths greater than 5 feet and are highly incised into the surrounding hillslope.

Class IV: Intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hillslope.

Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in bankfull width, little or no incisement into the surrounding hillslope, and with little or no evidence of scour.

Stream Order

First-order streams are the smallest unbranched tributaries; second-order streams are initiated by the point where two first-order streams meet; third-order streams are initiated by the point where two second-order streams meet, and so on.

Stumpage

The value of timber as it stands uncut in terms of dollar value per thousand board feet.

Subsistence

Section 803 of the Alaska National Interest Lands Conservation Act defines subsistence use as, "the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade."

Subsistence Use Area

Important subsistence use areas include the "most reliable" and "most often hunted" categories from the Tongass Resource Use Cooperative Survey (TRUCS) and from subsistence survey data from ADF&G, the University of Alaska, and the Forest Service, Region 10. Important use areas include both intensive and extensive use areas for subsistence harvest of deer, furbearers, and salmon.

Substrate

The type of material in the bed (bottom) of rivers and streams.

Succession

The ecological progression of community change over time, characterized by displacements of species leading towards a stable climax community.

Suitable

Commercial forest land identified as having both the biological capability and availability to produce industrial wood products.

Suitable Forest Land

Forest land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions, and for which there is reasonable assurance that such lands can be adequately restocked, and for which there is management direction that indicated that timber production is an appropriate use of that area.

Sustained Yield

The amount of renewable resources that can be produced continuously at a given intensity of management.

Tentatively Suitable Forest Land

Forest land that is producing or is capable of producing crops of industrial wood and: (a) has not been withdrawn by Congress, the Secretary of Agriculture or the Chief of the Forest Service; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that it is possible to restock adequately within 5 years after final harvest; and (d) adequate information is available to project responses to timber management activities.

Thinning

The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight. Thinning may also be done to change the characteristics of a stand or wildlife or other purposes. Thinning may be done at two different stages.

Threatened Species

Plant or animal species which is likely to become endangered throughout all or a significant portion of its range within the foreseeable future, as defined in the Endangered Species Act of 1973, and which has been designated in the Federal Register by the Secretary of the Interior as a Threatened Species. See also Endangered Species, Sensitive Species.

Tiering

Eliminating repetitive discussions of the same issue by incorporating by reference. The general discussion in an environmental impact statement of broader scope; e.g., this document is tiered to the Forest Plan.

Timber Appraisal

Establishing the fair market value of timber by taking the selling value minus manufacturing costs, the cost of getting logs from the stump to the manufacturer, and an allowance for profit and risk.

Timber Classification

Forested land is classified under each of the land management alternatives according to how it relates to be management of the timber resource. The following are definitions of timber classifications used for this purpose.

Nonforest: Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

Forest: Land at least 10 percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

Suitable or suitable available: Land to be managed for timber production on a regulated basis.

Unsuitable: Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as inappropriate for timber production in the Forest planning process.

Commercial forest: Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.

Timber Harvest Unit

A "Timber Harvest Unit" is a portion of a timber sale within which Forest Service specifies for harvest all or part of the timber to meet the requirements of a timber sale contract.

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Tongass Land and Resource Management Plan (Forest Plan)

The 10-year land allocation plan for the Tongass National Forest that directs and coordinates planning, the daily uses, and the activities carried out within the Forest.

Two-aged management

A silvicultural method in which the majority of the trees in a harvest unit are cut in one entry, and the rest are left as residual tree, either singly or in patches. The residual trees remain unharvested to provide structural diversity and older-aged trees within the second-growth stand.

Understory

The trees and shrubs in a forest growing under the canopy or overstory.

Uneven-aged Management

Forest management techniques which simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes.

Unsuitable

Forest land withdrawn from timber utilization by statute or administrative regulation; for example, Wilderness, or identified as not appropriate for timber production in the forest planning process.

Utility Logs

Those logs that do not meet sawlog grade but are suitable for production of firm usable pulp chips.

Value Comparison Unit (VCU)

Areas which generally encompass a drainage basin containing one or more large stream systems; boundaries usually follow easily recognizable watershed divides. Established to provide a common set of areas where resource inventories could be conducted and resource interpretations made.

Viable Population

The number of individuals of a species required to ensure the long-term existence of the species in natural, self-sustaining populations adequately distributed throughout their region.

Viewshed

An expansive landscape or panoramic vista seen from a road, marine waterway, or specific viewpoint.

Visual Quality Objectives (VQO)

Measurable standards reflecting five different degrees of landscape alteration based upon a landscape's diversity of natural features and the public's concern for high scenic quality. The five categories of VQOs are:

Preservation: Permits ecological changes only. Applies to Wilderness areas and other special classified areas. Management activities are generally not allowed in this setting.

Retention: Provides for management activities that are not visually evident to the casual forest visitor.

Partial Retention: Management activities remain visually subordinate to the natural landscape.

Modification: Management activities may visually dominate the characteristics landscape. However, activities must borrow from naturally-established form-line color and texture so that the visual characteristics resemble natural occurrences within the surrounding area when viewed in the middleground distance.

Maximum Modification: Management activities may dominate the landscape but should appear as a natural occurrence when viewed as background.

V-Notches

A deeply incised valley along some waterways that would look like a "V" from a cross-section. These abrupt changes in terrain features are often used as harvest unit or yarding boundaries.

Volume

Stand volume based on standing net board feet per acre by Scribner Rule.

Volume Strata

Categories of timber volume derived from the timber type data layer (TIMTYP) and the common land unit data layer (CLU). Three volume strata (low, medium, and high) are recognized in the Forest Plan.

Low Strata: The lowest range of volume for commercial forest land based on per acre volume estimates. The Forest Plan estimated the low volume class strata to contain approximately 13.9 MBF/Acre.

Medium Strata: The middle range of volume for commercial forest land based on per acre volume estimates. The Forest Plan estimated the medium volume class strata to contain approximately 23.3 MBF/Acre.

High Strata: The high range of volume for commercial forest land based on per acre volume estimates. The Forest Plan estimated the high volume class strata to contain approximately 29.9 MBF/Acre.

Watershed

The area that contributes water to a drainage or stream. Portion of the forest in which all surface water drains to a common point. Watersheds can range from a few tens of acres that drain a single small intermittent stream to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams.

Wetland

Areas that are inundated by surface or groundwater frequently enough to support vegetation that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include: swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds. See the modified 1997 Forest Plan pp. 3-318 and 3-321 for detailed discussion on wetland type definitions.

Wilderness

Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. In Alaska, Wilderness has been designated by ANILCA and TTRA.

Wildlife Analysis Area (WAA)

A division of land used by the Alaska Department of Fish and Game for wildlife analysis.

Wildlife Habitat

The locality where a species may be found and where the essentials for its development and sustained existence are obtained.

Windfirm

Trees that have been exposed to the wind throughout their life and have developed a strong root system or trees that are protected from the wind by terrain features.

Windthrow

The act of trees being uprooted by the wind. In Southeast Alaska, Sitka spruce and hemlock trees are shallow rooted and susceptible to windthrow. There generally are three types of windthrow:

Endemic: where individual trees are blown over;

Catastrophic: where a major windstorm can destroy hundreds of acres; and

Management Related: where the clearing of trees in an area make the adjacent standing trees vulnerable to windthrow.

Winter Range

An area, usually at lower elevation, used by big game during the winter months; usually smaller and better-defined than summer ranges.

Yarding

Hauling timber from the stump to a collection point.

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Appendix A

Reasons for Scheduling the Environmental Analysis of the Emerald Bay Timber Sale

Appendix A

Results for the
the Environmental
Analysis of the
Bay Area

Appendix A

Reasons for Scheduling the Environmental Analysis of Emerald Bay SEIS

Introduction

This appendix provides an explanation of the rationale for a specific timber harvest project and its importance to the multi-year timber program on the Tongass National Forest. To accomplish this, the following questions are answered:

- Why is timber from the Tongass National Forest being offered for sale?
- How does the Forest Service develop forecasts about timber market demand?
- What steps must be completed to prepare a sale for offer?
- How does the Forest Service maintain an orderly and predictable timber sale program?
- How does the Forest Service decide where timber sale projects should be located?

Coordinated timber sale planning is essential for meeting the goals of the Tongass Land and Resource Management Plan (Forest Plan) and to provide an orderly flow of timber to local industry. To determine the volume of timber to offer each year, the Forest Service can look to current market conditions and the level of industry operations. However, the planning process for timber harvest projects requires the Forest Service to rely on projections of future harvest levels to decide how many timber sale projects to begin each year. This document explains how the Forest Service uses information about future markets and past experience with timber sale planning to determine the volume of timber that needs to be started through this process each year. This appendix relies heavily on the current annual timber demand analysis and the most recent timber sale schedule.

Why is Timber from the Tongass National Forest Being Offered for Sale?

National Legislation

On a national level, the legislative record is clear about the role of the timber program in the multiple-use mandate of the national forests. One of the original objectives for creation of national forests was to provide natural resources, including timber, for the American public. The Organic Act of 1897 (partially repealed in 1976) directed the agency to manage the forests in order to "improve and protect the forest ... [and] for the purpose of securing favorable conditions of water flows, and to *furnish a continuous supply of timber* for the use and necessities of the citizens of the United States" (emphasis added). The Multiple-Use Sustained Yield Act of 1960 directs the Forest Service to administer federal lands for "outdoor recreation, range, timber, watershed, and wildlife and fish purposes."

The National Forest Management Act (NFMA) of 1976 states that "the Secretary of Agriculture...[may sell, at not less than appraised value, trees, portions of trees, or forest products located on National Forest System Lands]." Although the heart of the Act is the land management planning process for national forests, the Act also sets policy direction for timber management and public participation in Forest Service decision-making. Under NFMA, the Forest Service was directed to "limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis".

The NFMA directs the Forest Service to complete land management plans for all units of the National Forest System. Forest Plans are developed by an interdisciplinary team to provide for the coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. Forest plans designate areas of national forest where different management activities and uses are considered appropriate including those areas suitable for timber harvest.

Alaska-Specific Legislation

Timber from the Tongass National Forest is being offered for sale as part of the multiple-use mission of the Forest Service identified in the public laws guiding the agency. In addition, Alaska-specific legislation and the Tongass Forest Plan direct the Forest Service to seek to provide timber to meet market demand, subject to the budget appropriations process.

Legislation unique to Alaska directs the Forest Service to maintain a commercial timber program. The Alaska National Interest Lands Conservation Act (ANILCA) and the Tongass Timber Reform Act (TTRA) provide direction on the issue of Tongass timber supply. Section 101 of TTRA amended the ANILCA timber supply mandate and fixed budget appropriations and replaced them with the following text in Section 705 (a):

Sec. 705. (a) Subject to appropriations, other applicable law, and the requirements of the National Forest Management Act of 1976 (P.L. 94-588); except as provided in subsection (d) of this section, the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the annual market demand from such forest for each planning cycle”.

**Tongass National
Forest Land and
Resource
Management Plan
(Forest Plan, as
amended)**

The Record of Decision for the Forest Plan was signed by the Alaska Regional Forester in 1997. The Forest Plan incorporated new resource information and scientific studies and reflected an extensive public involvement process.

There was direction to supplement the 1997 Final Environmental Impact Statement (Final EIS) to evaluate and consider roadless areas on the Tongass for recommendation as potential wilderness areas as part of the March 2001 US District Court decision on litigation on the 1997 Forest Plan. The Record of Decision for the Supplemental Environmental Impact Statement was signed in February 2003. The No-action Alternative was selected; no additional lands were recommended for Wilderness designation and no changes were made to the Land Use Designations (LUDs) from the 1997 Record of Decision. The 1997 Forest Plan defines appropriate activities within each LUD. Approximately 74 percent of the Tongass is allocated to LUDs where commercial timber harvest is not allowed.

Amendments have been made to the 1997 Forest Plan, primarily to modify small Old-growth Habitat Reserves to meet Forest Plan criteria. These amendments have been accomplished through environmental analysis and are documented in decision documents. Due to those modifications, LUDs in certain areas have changed from development LUDs that allow timber harvest to Old-growth Habitat LUDs or changed from the Old-growth Habitat LUDs to development LUDs. Since the plan was signed in 1997, these amendments have affected 2 percent of the acres designated as suitable commercial timber by re-designating them as Old-growth Habitat LUD where timber harvest is not allowed.

The effects to resources in the Final EIS for the 1997 Forest Plan were analyzed as if the full timber harvest allowed under each alternative would occur over the next decade and into the future. In that way, the Forest Plan analysis displayed the maximum environmental effects that could be reasonably foreseen. Since substantially less timber volume and acres have been harvested in the first 8 years of Forest Plan implementation than was analyzed, the effects on resources are expected to be less than projected in the 1997 Final EIS. The environmental effects analysis in the Forest Plan estimated that up to 267 MMBF and 10,200 acres would be harvested per year. Forest Plan monitoring indicates that average annual harvest has been considerably less than that amount.

Appendix A

On August 5, 2005, the Ninth Circuit Court of Appeals ruled that a misinterpretation of the Brooks and Haynes 1997 draft timber demand projections rendered the 1997 Record of Decision for the Tongass Land and Resource Management Plan Revision arbitrary and capricious. The court of appeals remanded the matter for further proceedings consistent with the court's opinion. *Natural Resources Defense Council v. U.S. Forest Service*. The process of remedying the defects identified by the court of appeals will be time-consuming. Delaying the completion of this and other site-specific projects should be avoided because it would result in substantially undermining the Forest Service's ability to respond to timber demand.

Allowable Sale Quantity (ASQ)

The ASQ serves as an upper limit on the amount of timber that may be offered for sale each decade as part of the regularly scheduled timber sale program. The Record of Decision for the 1997 Forest Plan states:

“The maximum amount of timber that could be harvested (Allowable Sale Quantity or ASQ) during the first decade of the Forest Plan implementation is an average of 267 MMBF per year. A timber volume level less than the ASQ is likely to be offered over the next few years, given current market conditions, the transition that both the timber industry and the Forest Service are experiencing, and the current amount of appeals and litigation.”

The ASQ is the amount of sustainable timber that can be harvested from suitable forested lands allocated to development by the Forest Plan, in accordance with standards and guidelines and other limitations set out in the plan.

It consists of two separate Non-Interchangeable Components (NICs) called NIC I and NIC II. The NIC I component includes lands that can be harvested with normal logging systems including helicopter logging with less than $\frac{3}{4}$ mile yarding distance. The NIC II component includes land that has high logging costs due to isolation or special equipment requirements. Most of these NIC II lands are presently considered economically and technically marginal.

There are two purposes of partitioning the ASQ into two components: to maintain the economic sustainability of the timber resource by preventing the over-harvest of the best operable ground and to identify that portion of the timber supply that may not be harvested because of marginal economic conditions.

With regard to timber production sustainability, the decision for the 1997 Forest Plan further states:

The timber resource will be managed for production of sawtimber and other wood products from timberlands available for sustainable timber harvest, on an even-flow, sustained-yield basis and in an economically efficient manner. The Tongass National Forest will seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber and the market demand for the planning cycle.

The Tongass National Forest will continue to allow timber harvest while maintaining sustained yield and multiple-use goals. The forest-wide standards and guidelines for timber include general direction to “[e]nsure that silvicultural systems other than clearcutting are considered through an appropriate project level analysis process. However, uneven-aged management systems will be limited to areas where yarding equipment suited to selective logging can be used....”

Roadless Area Conservation Rule

The January 2001 Roadless Area Conservation Rule prohibited most timber harvest and road construction in inventoried roadless areas on National Forest System lands. In July 2003, the US District Court for the District of Wyoming set aside the roadless rule and permanently enjoined its implementation. Effective January 2004, after analysis of current conditions and public comment, the Department of Agriculture amended the roadless rule so that actions on the Tongass are not subject to the prohibitions against commercial harvest and road building in the roadless rule. Management of inventoried roadless areas on the Tongass is now governed by the 1997 Forest Plan.

In May 2005, the Forest Service adopted a new rule that established a petitioning process that provides the ability for Governors to request adjustments to management of inventoried roadless areas on national forests in their states. An analysis of the effects to roadless areas within the project area has been included as part of the analysis for this project. This project is consistent with agency policy and procedures and has been designed to meet the management direction, goals and objectives, and standards and guidelines in the Forest Plan.

How does the Forest Service Develop Forecasts about Timber Market Demand?

Annual Market Demand

Consistent with the provisions of the Tongass Timber Reform Act, the Tongass National Forest makes two determinations on volume to be offered. The first is an estimate on volume to be offered for the current year, based on a forecast of annual timber market demand. Annual market demand is analogous to assessing industry performance in the short-term. The general approach is to consider the timber requirements of the region’s sawmills at different levels of operation and under different assumptions about market conditions and technical processing capability.

Timber inventory requirements are acknowledged and included in the timber demand forecast. These assumptions provide a basis for estimating the volume of timber likely to be processed by the industry as a whole in any given year. The volume of timber likely to be purchased is equal to the volume needed to make up any inventory shortfall in addition to the volume likely to be harvested in the coming year.

Appendix A

The annual market demand forecast is a methodology used to set the short-term goals for the Tongass timber sale program – it is the projected volume of Tongass timber needed to meet annual market demand. The estimated annual market demand is the volume the Forest plans to offer for sale in the current year of the 10-year sale schedule, pending sufficient funding.

The reports *Responding to the Market Demand for Tongass Timber* (Morse, April 2000) and *Tongass National Forest Timber Sale Procedures* (Morse, October 2000) document the formulas and procedures used in forecasting annual market demand. The procedures are designed to be flexible given the uncertainty associated with forecasting market conditions. This is especially difficult in Southeast Alaska because of the structural transformation underway in the timber industry. The methodology accounts for the fact the Forest Service timber sale program cannot quickly respond to market fluctuations and allows the industry to accumulate adequate volume under contract. The methodology includes provisions to monitor industry behavior and includes ways to adjust timber sale program levels to reflect harvest activity.

The methodology used by Morse documents the formulas and procedures used in forecasting annual market demand, and uses the correct demand numbers from the 1997 Brooks and Haynes report. In addition, the methodology is self-correcting based on actual experience and considers such factors as mill capacity, utilization, and volume under contract. To the extent that actual harvest is lower than projected harvest, the inventory of timber under contract builds up and the demand for new timber decreases, as long as economic volume is available. The annual demand for FY 05 is projected to be 143 mmbf. The spreadsheet displaying how this demand is calculated and a summary of the factors used in these calculations are in the project record.

The planned offer could include a combination of new, previously offered, and reconfigured timber sales. Both green timber and salvage will be components of the program. Offerings will consist of those targeted for Small Business qualified firms, as well as a portion of the volume being made available for the open market.

Market Demand over the Planning Cycle

The second level of market demand is for the volume needed over the planning cycle (usually 10 years). The Forest Service documents market demand projections and the means of implementation through a 10-Year Timber Sale Plan. To keep the planning cycle demand current, each year the 10-Year Timber Sale Plan is updated for each ranger district, whereby the current year is dropped at the end of the fiscal year and a new year is added.

Demand projections are important for timber sale program planning. They provide guidance to the Forest Service to request budgets, to make decisions about workforce and facilities, and to indicate the need to begin new environmental analysis for future program offerings. They also provide a basis for expectations regarding future harvest, and thus provide an important source of information for establishing the schedule of probable future sale offerings. The weight given to the projections will vary depending on a number of

factors, such as how recently they were done and how well they appear to have accounted for recent, site-specific events in the timber market.

Table A-1
Projected and Actual Tongass Harvest (MMBF)

Projected Harvest ¹				Actual Harvest
Fiscal Year	Low	Medium	High	
1998	77.3	86.0	112.2	119.8
1999	86.4	99.3	127.9	145.8
2000	95.5	115.9	142.7	146.8
2001	104.6	129.0	157.7	47.8 ²
2002	113.7	134.9	173.1	33.8
2003	122.8	140.8	188.9	50.8
2004	131.9	146.5	205.0	46
2005	131.9	152.2	221.4	
2006	131.9	157.8	238.2	
2007	132.0	163.4	255.3	
Average	112.8	132.6	182.2	

¹ From Morse, April 2000 and Brooks and Haynes 1997.

² Truncated logging season due to litigation.

What Steps Must Be Completed to Prepare a Sale for Offer?

The Tongass National Forest timber sale program is complex. A number of projects are underway at any given point in time, each of which may be in a different stage of planning and preparation. A system of checkpoints, or “gates” (Forest Service Handbook 2409.18, Chapter 10), helps the Forest Service track the accomplishments of each stage of a project from inception to contract termination.

Gate 1 – Initial Planning of Timber Sale Project

A Timber Sale Project Plan, often referred to as a Position Statement, is a brief analysis of the project area with the intent of determining the feasibility of a potential timber sale. After the Position Statement is developed, the Forest Service decides whether the project area merits continued investment of time and funds in sale planning.

Gate 2 – Project Analysis, Sale Area Design, and Decision

This step is commonly referred to as the “NEPA” phase and includes field work, public scoping, analysis, draft disclosure of the effects of the project on

the environment, public comment, final analysis and disclosure, decision, and potential administrative appeals and litigation. Gate 2 activities are generally completed 2 to 3 years before a sale is offered. Legislation, policy changes, and appeals and litigation have recently extended completion of some projects for a much longer timeframe, often doubling the desired time frame

Gate 3 – Preparation of a Timber Sale

During this step, the information and direction included in the decision document from Gate 2 is used to layout units and design roads on the ground. Additional site-specific information is collected at this time. In order to maintain an orderly flow of sales, Gate 3 activities should be completed 1 to 3 years before a sale is offered.

Gate 4 – Advertise a Timber Sale

The costs and value associated with the timber sale designed in Gate 3 are appraised and packaged in a timber sale contract. The contract is a legally binding document that directs a prospective timber sale purchaser how the sale must be harvested to be in conformance to the project decision document. This step occurs during the final year of the project development and culminates with the advertisement of the project for sale.

Gate 5 – Bid Opening

Gate 5 is completed with the opening of bids for the project. If a bid is submitted, contractual provisions govern when the award of the sale takes place, when the sale will be completed (contract length and operation season), and how timber removal is to occur.

Gate 6 – Award a Timber Sale Contract

Gate 6 is the formal designation of a contract between a bidder and the Forest Service.

How does the Forest Service Maintain an Orderly and Predictable Timber Sale Program?

Pools of Timber (Pipeline Volume)

As discussed earlier, the Forest Service tracks the accomplishment of the different steps of development of each timber sale with the Gate System process. From a timber sale program standpoint, it is also necessary to track and manage multiple projects through a “pipeline” of time as projects collectively move through the Gate System. Because of the timeframes needed to accomplish a given timber sale and the complexities inherent in timber sale project and program development, it is necessary to track various timber sale program volumes from Gate 1 through Gate 6.

The goal of the Tongass National Forest is to provide an even flow of timber sale offerings on a sustained yield basis to meet market demand. In recent years, this has been difficult to accomplish due to a combination of

uncertainties such as delays related to appeals and litigation; changing economic factors, such as rapid market fluctuations; and industry related factors, such as changes in timber industry processing capabilities. To achieve an even flow of timber sale offerings, "pools" of volume in various stages of the Gate System are maintained so volume offered can be balanced against current year demand and market cycle projections

Today, upward trends in demand are resolved by moving out-year timber projects forward, which may leave later years not capable of meeting the needs of the industry. In other instances, a number of new projects are started based on today's market, but will not be available for a number of years. By the time the added projects are ready for offer, the market and demand for this volume may have changed. Three pools of timber volume are tracked to achieve an even flow of timber sale offerings.

The objective of the timber pools concept is to maintain sufficient volume in preparation and under contract to be able to respond to yearly fluctuations in a timely manner. Refer to Table A-2, which displays the projected volume in each pool, as well as the goal for volume. Based on historic patterns, the Tongass has established a goal for the volume to be maintained in each of the timber pools. Appeals and litigation can cause timber sale projects to be reevaluated to ensure they meet current standards and direction, which can cause delays in making projects available to move through the pools, thereby not fully meeting the goals for volumes in each pool.

Pool 1 - Timber Volume Under Analysis (Gate 1 and Gate 2)

Volume in Gate 1, the initial planning step, represents a large amount of volume, but represents a relatively low investment in each project. This relatively low investment level offers the timber program manager a higher degree of flexibility and thus, does not greatly influence the flow of volume through the pipeline.

Gate 2, Timber volume under environmental analysis, includes sales being analyzed and undergoing public comment through the NEPA process. This pool includes any project that has started the scoping process through those projects ready to have a decision issued. In addition, tracking how much volume is involved in appeals or litigation may be necessary to determine possible effects on the flow of potential timber sales. Volume in appeals and litigation is tracked as a subset of this pool as necessary (Table A-3).

Based on historic patterns, the Tongass has established a goal for the pipeline volume to be maintained in each of the timber pools. The goal for Pool 1 is to be maintained at approximately 4.5 times the amount of the projected harvest to account for projects at various stages of analysis. That goal reflects a number of factors which can lead to a decrease in volume available, such as a decision in Gate 1 to drop further analysis in a particular planning area (called the "no go" decision), a falldown in estimated volume between Gate 1 and Gate 2, and volume not available for harvest due to appeals or litigation.

Pool 2 - Timber Volume Available for Sale (Gates 3, 4 and 5)

Timber volume available for sale includes sales for which environmental analysis has been completed, and have had any administrative appeals and litigation resolved. Enough volume in this pool is needed to be maintained to be able to schedule future sale offerings of the size and configuration that best meets market needs in an orderly manner.

As a matter of policy and sound business practice, the Forest Service announces probable future sale offerings through the Periodic Timber Sale Announcement. Recent delays at Gate 2 have affected sale preparation and have made scheduling uncertain. At Gate 4, sales have been fully prepared and appraised, and are available to managers to advertise for sale. This allows potential purchasers an opportunity to do their own evaluations of these offerings to determine whether to bid, and if so, at what level.

Timber in this pool can include a combination of new sales, previously offered unsold sales, and remaining volume from cancelled sales. The goal is to maintain Pool 2 at approximately 1.3 times the amount of the projected harvest to allow flexibility in offering sales.

Pool 3 - Timber Volume under Contract (Gate 6)

Timber volume under contract contains sales that have been sold and a contract awarded to a purchaser, but which have not yet been fully harvested. Contract length is based on the amount of timber in the sale, the current timber demand, and takes into account the accessibility of the area for mobilization. The longer the contract period, the more flexibility the operator has to remove the timber based on market fluctuations. Timber contracts typically initially give the purchaser 3 years to harvest and remove the timber purchased. Analysis of Tongass timber sales indicates an average sale length of about 6 years.

The Tongass attempts to maintain roughly 3 years of unharvested volume under contract to the industry as a whole. This volume of timber is the industry's dependable timber supply, which allows adaptability for business decisions. This practice is not limited to the Alaska Region, but is particularly pertinent to Alaska because of the nature of the land base. The relative absence of roads, the island geography, the steep terrain, and the consequent isolation of much of the timber land means that timber purchasers need longer-than-average lead times to plan operations, stage equipment, set up camps, and construct roads prior to beginning harvest.

A combination of projected harvest and projected demand is used to estimate the volume needed to maintain an even-flow timber sale program. As purchasers harvest timber, they deplete the volume under contract. Timber harvest is then planned and offered by the agency as sales that give the industry the opportunity to replace this volume and build or maintain their working inventory. Although there will be variation for practical reasons from year to year, in the long run over both the high points and low points of the market cycle, the volume harvested will equal the timber volume sold.

The goal for Pool 3, volume under contract, is to maintain at approximately three times the amount of projected harvest to allow the purchasers to have a continuous supply of timber volume available for harvest so they can plan their operations.

Table A-2 Accomplishments in Gate System and Timber Pools (MMBF)

Pipeline Pool Volume	Goal	FY 05 As of 9/16/05
Pool 1 Volume Under Analysis (Gate 1 and 2)	594 ¹	336
Pool 2 Volume Available for Sale (Gate 3, Gate 4 and Gate 5)	172 ²	300 ³
Pool 3 Volume Under Contract (Gate 6)	396 ⁴	72 ⁵

¹ The goal for volume under analysis is approximately 4.5 times the projected harvest for the current year (132 MMBF for 2005 based on PNW estimates). Volume under analysis includes all volume in projects from the Notice of Intent through completion of the environmental analysis.

² The goal for volume available for sale is to have at least 1.3 times the projected harvest for the current year (132 MMBF) in sales that have approved NEPA and completion of timber sale preparation.

³ Includes volume from sales mutual cancelled under the provision of the 2004 Appropriations Act (Sec. 339). However, much of this volume appraises deficit and could not be offered for sale (2005 Appropriations Act, Sec. 317). This includes volume for FY 05 offerings (65 mmbf) that have not been awarded. Does not include volume under litigation – see Table A-3.

⁴ The goal for volume under contract is for purchasers to have 3 times the volume under contract as projected for harvest for the current year (132 MMBF).

⁵ Estimated volume under contract available for harvest (not including timber enjoined from harvest).

How Appeals and Litigation affect the timber sale program

Timber harvest projects require site-specific environmental analysis that usually is documented in an environmental assessment (EA) or an environmental impact statement (EIS). The public is notified of the analysis and is provided the opportunity to comment on proposals and file an appeal on decisions. The appeal process for most timber harvest projects takes up to 105 days before implementation can occur.

When decisions are appealed and affirmed through the appeal process, the project can still be litigated. Litigation can be a lengthy process. Although litigation does not preclude offering timber for sale, the Forest Service and potential purchasers are often reluctant to enter into a contract where the outcome is uncertain. Two sales within the last year were enjoined from harvest after the contracts were awarded. The outcome of litigation affects the Forest's ability to provide a reliable timber supply.

Table A-3
Timber Volume Involved in Appeals and/or Litigation (as of 9/16/05)

Timber volume remanded on appeals *	35 MMBF
Timber volume involved with litigation	215 MMBF
Timber volume under contract enjoined from implementation	12 MMBF

*Remanded – Decision overturned during internal review. Does not include that volume in decisions currently in the appeal period or undergoing an appeal.

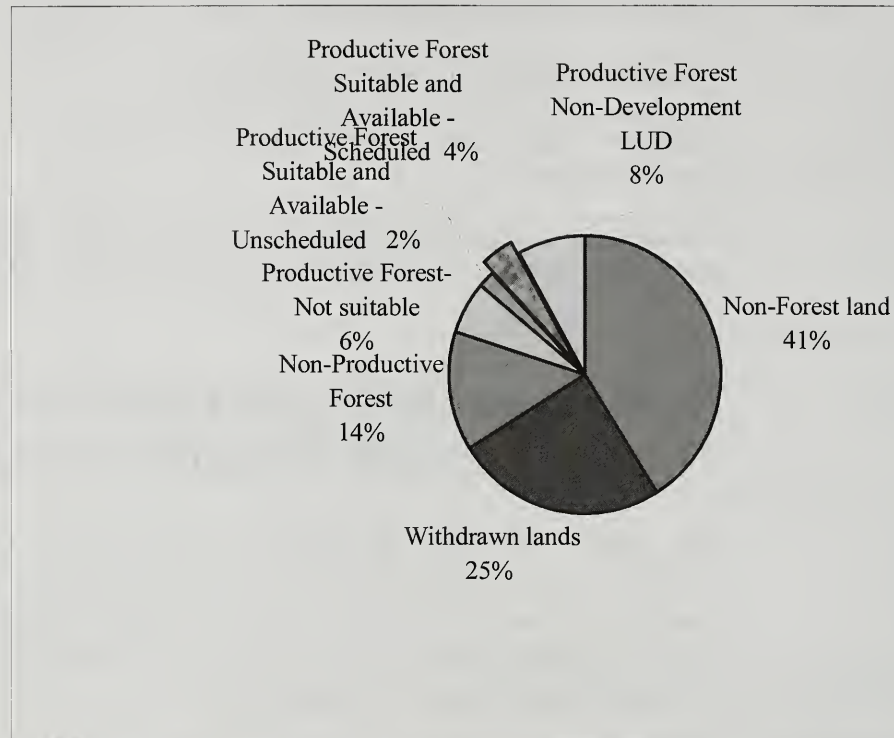
How Does the Forest Service Decide Where Timber Harvest Projects should be Located?

The location of timber sale projects is based first on the land allocation decisions in the Forest Plan. Under the 1997 Forest Plan, lands designated for possible timber harvest are in the development Land Use Designations (LUDs), primarily the Timber Production, Modified Landscape, and Scenic Viewshed Land Use Designations.

Timber Resource Land Suitability

The second consideration is the suitability of the land for timber production. Many acres within the development LUDs are not suitable for timber production due to poor soils or steep slopes. The process for determining the suitability of the land is found in the Forest Plan, Appendix A. Chart A-2 depicts the classification of all the lands within the Tongass National Forest. Four percent of the Tongass land base, the suitable, available and scheduled forest land, provides the land base for the Allowable Sale Quantity of 267 MMBF per year. Under the 1997 Forest Plan, the remainder of the land, approximately 96 percent, does not allow, is not scheduled, or is not physically suitable.

Chart A-2
1997 Forest Plan Timber Resource Suitability Analysis



Non-Forest land – Land that has never supported forests, e.g. muskeg, rock, ice

Withdrawn Lands – Lands designated by Congress, the Secretary of Agriculture, or Chief for purposes that preclude timber harvest, e.g. Wilderness Areas.

Non-productive Forest – Forest land not capable of producing commercial wood on a sustained yield basis.

Productive Forest, Not suitable, Physical Attributes – Forest land unsuitable for timber production due to physical attributes (steep slopes, soils, etc) and/or inadequate information to ensure restocking of trees within 5 years of final harvest.

Productive Forest, Not suitable, Non-development LUD – Productive forest lands where timber production is not allowed due to Forest Plan land use designation e.g. Semi-Remote Recreation, Old-growth Habitat, etc.

Productive Forest, Suitable and Available, Scheduled – Forest land that meets all the criteria for timber production suitability and is available and is scheduled by the Forest Plan over the planning horizon.

Productive Forest Suitable and Available, Unscheduled – Forest land that meets all the criteria for timber production suitability, is available for harvest, however was not scheduled in the Forest Plan model for harvest.

District-Level Planning

The Tongass National Forest is divided into ten ranger districts. For planning and scheduling purposes, the allowable sale quantity has been allocated to the ranger districts based on the Forest Plan modeling (FORPLAN) results of suitable and available acreage. The average annual distribution of the full Forest Plan allowable sale quantity by ranger districts is displayed in Table A-4 (all volumes are identified as sawlog plus utility).

Table A-4
Annual Project Distribution of Forest Plan Allowable Sale Quantity
(MMBF)

Ranger District	Non-Interchangeable Component (NIC) ¹	
	NIC I	NIC II
Ketchikan/Misty Fiords	32	7
Thorne Bay	42	9
Craig	33	7
Wrangell	28	6
Petersburg	50	9
Sitka	17	4
Hoonah	7	2
Juneau	7	2
Yakutat	4	1
Admiralty National Monument	0	0
NIC Totals	220	47
ASQ Total	267	

¹NIC I component - lands that can be harvested with normal logging systems including helicopter logging with less than ¾ mile yarding distance.

NIC II component includes land that has higher logging costs due to isolation or special equipment requirements.

The Forest Supervisor for the Tongass National Forest is responsible for the overall management of the Forest's timber sale program. Included within these responsibilities is determining the amount of timber volume to be made available to industry. Whether or not sufficient funding is appropriated to attain the program is the responsibility of the Congress and the President.

While the Congressional appropriation process is taking place, the Tongass Forest Supervisor directs the District Rangers to develop a timber sale plan that is the best estimation of the potential timber harvest projects to attain the prescribed offer level for the current year based on annual market demand, as well as developing a timber program for the planning cycle, based on the NIC I average for the ranger districts. The offer level for the current year in this plan is based, to the extent possible, on the forecasted annual market demand. Demand may fluctuate from year to year but recent years have shown little change in the annual demand projection. Offerings may vary from year to year but recently they have been in the low market scenario range, as determined by the projected annual demand.

The District Ranger is responsible for identifying and recommending the project areas for the 10-year Timber Sale Plan. The Ranger's role is to develop and recommend to the Forest Supervisor timber harvest projects that meet Forest Plan goals and objectives. Districts work on various timber sale projects simultaneously, resulting in continual movement of projects through the stages

of the timber program pipeline. This schedule allows the necessary time to complete preliminary analysis, resource inventories, environmental documentation, field layout preparations and permit acquisition, appraisal of timber resource values, advertisement of sale characteristics for potential bidders, bid opening, and physical award of the timber sale. Project delays through the completion of Gate 2 attributable to legal injunctions and litigation has affected the offer level in recent years. Once all of the Rangers' recommendations are made and compiled into a consolidated schedule, the Forest Supervisor is responsible for the review and approval of the final 10-Year Timber Sale Plan.

Some of the considerations the District Ranger takes into account for each project include:

- The project area contains a sufficient number of suitable timber production acres allocated to development land use. Available information should indicate that the timber volume being considered for harvest can be achieved while meeting Forest Plan goals, objectives, and standards and guidelines.
- Other resource use and potential future uses of the area and of adjacent areas and of non-National Forest System lands.
- Areas where the investment necessary for project infrastructure (roads, bridges, etc.) is achievable with the estimated value of timber in the project area. Where infrastructure already exists, the project would allow any maintenance and upgrade of the facilities necessary for removal of timber volume.
- Areas where investments for the project coincide with long-term management based on Forest Plan direction.

The implementation of the sales on the timber sale plan depends in part on the final budget appropriation to the agency. In the event insufficient budget is allocated, or resolution of pending litigation or other factors delay planned sales, timber sale projects are selected and implemented on a priority basis. Generally, the higher-priority projects include sales where investments such as road networks, camps or log transfer facilities have already been established or where land management status is not under dispute. The distribution of sales across the Tongass is also taken into account to distribute the effects of sales and to provide sales in proximity to timber processing facilities. Timber sale projects, scheduled for the current year that are not implemented or the remaining volume of sales that are only partially implemented are shifted to future years in the plan. The sale plan becomes very dynamic in nature due to the number of influences on each district.

The Emerald Bay project meets all laws and regulations governing the removal of timber from National Forest System lands, including Forest Service policies as described in Forest Service manuals and handbooks and the 1997 Forest Plan and ROD. Based on current year and anticipated future timber volume demand and the timber supply provisions of the Tongass Timber Reform Act,

the analysis of the Emerald Bay project is prudent at this time to meet future timber sale needs as demonstrated in the revised 10-Year Timber Sale Plan. The anticipated budget allocations and the availability of resources are sufficient to prepare and offer this project for sale as scheduled.

How does this project fit into the Tongass timber program?

The Emerald Bay project is currently in Gate 2, Project Analysis. The amount of volume considered for harvest under the action alternatives ranges from 12.4 MMBF to 16.4 MMBF which would contribute to the Tongass timber sale program. A no-action alternative is also analyzed in this EIS. If an action alternative is selected in the decision for the Emerald Bay project, this volume will be added to the volume available for sale. As described in the Pools of Timber section of this appendix, the volume of timber needed to maintain Pool 1 is 4.5 times the amount of the projected harvest to account for projects at varying stages of analysis for that year.

Currently, forest-wide, the volume under analysis (Pool 1) contains about 336 MMBF and includes the volume for this project. The Emerald Bay project contributes to timber sale program planning objectives to meet the goal of providing an orderly flow of timber from the Tongass on a sustained yield basis to meet timber supply requirements. It is reasonable to be conducting the environmental analysis for this project at this time. The Emerald Bay project is currently proposed for offer in Fiscal Year 2007.

Why is this project occurring in this location at this time?

As explained above, timber harvest project areas are selected for environmental analysis for a variety of reasons. The reasons this project is being considered in this area include:

- The Emerald Bay Timber Sale continues to be a priority for the District to finish the NEPA as an opportunity to provide employment opportunities from this project. This project has gradually progressed through the Gate 2 process due to changes in the roadless policies, the introduction of a new economical alternative, the Final EIS decision being reversed on appeal, and the writing of a Supplemental Environmental Impact Statement. A Notice of Intent for this project was published in 1998 and has been part of the District's 10-year timber sale action plan since this date. This project had a circulated Draft EIS prior to the Roadless Rule in 2001 thus making this project exempt from the Roadless Rule. It offered a management opportunity to provide timber employment when many of the District's timber analyses were on hold pending litigation and direction on the Roadless Rule.
- The Forest Plan designates a portion of the project area for timber production. These timber management areas emphasize maintaining and promoting industrial wood production from suitable timber lands to provide a continuous supply of wood and to manage for sustainable long-term timber yields. The Emerald Bay project area is a favorable area because it has a higher percentage of suitable timber acres, and it is nearly equal distance to the Ketchikan and Wrangell mill locations.

These products are reasonably close to these businesses to allow a reasonable assurance that the sale would sell.

- This project has an economically viable alternative. Alternative B has a positive value of \$5.01/CCF in the 1st quarter of 2004, and a positive value for 11 of the 12 quarters in the analysis period. The road construction design features would minimize the cost to purchasers.
- This is the initial entry for this project area Timber Land Use Designation (LUD). Prior harvest or road construction has not occurred. As a result, cumulative effects associated with this project are anticipated to be minimal.
- The project area has minimal subsistence and recreational use compared to other Timber LUDs on the District. With fewer conflicts associated with these resources, it is more logical to conduct timber harvest in this area.
- Other areas on the District have active planning efforts or ongoing timber sales, making them unavailable. This area does not have the constraints of other planning efforts or active projects or their cumulative effects.

Conclusion

There is a long legislative recognition that timber harvest is one of the appropriate activities on National Forest System land, starting with the founding legislation for national forests in 1897. The National Forest Organic Act provides that national forests may be established *“to improve and protect the forest within the boundaries of, or for the purposes of securing favorable conditions of water flows and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States.”*

Congress’s policy for national forest, as stated in the Multiple Use Sustained Yield Act of 1960, is “the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes.” Accordingly, Congress has authorized the Secretary of Agriculture to sell trees and forest products from the national forests “at no less than appraised value.” The National Forest Management Act directs that forest plans shall “provide for multiple use and sustained yield, and in particular, include coordination of “outdoor recreation, range, timber, watershed, wildlife, fish and wilderness.”

In addition to nationwide statutes, section 101 of the Tongass Timber Reform Act directs the Forest Service to seek to meet market demand for timber from the Tongass, subject to certain qualifications. It is the goal of the Tongass National Forest to provide an even flow of timber on a sustained-yield basis and in an economically efficient manner. The amount of timber offered for sale each year is based on the objective of offering enough volume for sale to meet the projected annual demand. That annual demand projection starts with

installed mill capacity, and then looks to industry rate of capacity utilization under different market scenarios, the volume under contract, and a number of other factors, including anticipated harvest and the range of expected timber purchases.

As described by Morse (April 2000), in terms of short-term economic consequences, oversupplying the market is less damaging than undersupplying it. If more timber is offered than purchased in a given year, the unsold volume is still available for re-offer in future years. The unsold volume would have no environmental effects because it would not be harvested. Conversely, a shortfall in the supply of timber can be financially devastating to the industry. The Emerald Bay project could supply from 12.4 MMBF to 16.4 MMBF of volume for sale, with harvest potentially beginning in Fiscal Year 2007.

References

David Brooks and Richard Haynes, September 1997, *Timber Products Output and Timber Harvest in Alaska: Projections for 1997-2010*, USDA Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-409.

Kathleen Morse, April 2000, *Responding to the Market Demand for Timber, Using Adaptive Management to Implement Sec. 101 of the 1990 Tongass Timber Reform Act*, USDA Forest Service, Alaska Region, R10-MB-413.

Kathleen Morse, October 2000, *Tongass National Forest Timber Sale Procedures, Using Information about Market Demand to Schedule FY 2001 Timber Offerings*, USDA Forest Service, Region 10.

Organic Act of 1897, 16 USC 473-481

Multiple-Use Sustained Yield Act of 1960, 16 U.S.C. 528-531

National Forest Management Act (NFMA) of 1976 (16 U.S.C. 472a)

Alaska National Interest Lands Conservation Act (ANILCA; P.L. 96-487, 1980)

Tongass Timber Reform Act (TTRA; P.L. 101-625, 1990)

Appendix B

Biological Assessment and Biological Evaluation

**FINAL
BIOLOGICAL ASSESSMENT/BIOLOGICAL EVALUATION
Emerald Bay FSEIS
August 1, 2005**

I. INTRODUCTION AND SCOPE

This combined Biological Assessment/Biological Evaluation (BA/BE) is a review of the Emerald Bay Timber Sale to determine whether it may affect Federally listed species or Region 10 sensitive species. This document is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973 (19 U.S.C. 1536 (c)) as amended, and follows standards in Forest Service Manual (FSM) direction (2672.42) and the Code of Federal Regulations (50 CFR S402). This document tiers to the Tongass National Forest Land and Resource Management Plan (Forest Plan, 1997), and the accompanying Final Environmental Impact Statement (FEIS pages 3-230 thru 3-247 and Appendix J).

Federally Threatened, Endangered, and Proposed species lists for the project area were originally provided by the U.S. Fish and Wildlife Service and National Marine Fisheries Service on December 18, 1998 and December 24, 1998, respectively. Current lists were accessed from the FWS website on August 1, 2005. This list forms the basis of the analysis for Federally listed species. The Sensitive Species list for the Alaska Region was revised in 1994; the plant list was further amended in 1999 and 2002. This BA/BE updates the previous 1999 BA/BE using revised lists and additional survey information.

II. AREA AFFECTED BY THE PROPOSED ACTION

A Final Supplemental Environmental Impact Statement (FSEIS) is being prepared for the Emerald Bay Project Area. The proposed timber sale is located approximately 40 miles north of Ketchikan, Alaska and encompasses an area of the northern Cleveland Peninsula that faces Ernest Sound. Emerald Bay includes 7,845 acres of which 67% has been designated as old-growth habitat reserve. The action includes the harvest of between 601 (Alternative B) and 620 (Alternatives C and D) acres of old-growth forest. Alternative B uses a mix of even and uneven-aged silvicultural prescriptions, while Alternatives C and D use uneven-aged silvicultural systems. Alternative C would not construct roads; all logs would be flown by helicopter directly to a barge. Alternatives B and D would build road and construct a land to barge LTF at Emerald Bay. Road clearing width would be 55 feet wide.

Table 1. Comparison of Alternatives

Category	Alternative A	Alternative B	Alternative C	Alternative D
Even-aged prescriptions	0	396 acres	0	0
Uneven-aged prescriptions	0	205 acres	620 acres	620 acres
Miles of new road construction	0	6.2 miles	0	3.8 miles
LTF Construction	0	1 LTF	0	1 LTF

III. PREFIELD REVIEW

A prefield review of Federally endangered, threatened, and proposed species within Alaska and Region 10 sensitive species was completed using existing survey data, GIS layers and databases, communication with research personnel, literature reviews, and information in the Forest Plan FEIS. All threatened, endangered, proposed, and sensitive species were reviewed (Attachments 1 and 2); species not occurring within the inside waters or southern portion of the Tongass National Forest were dropped from further analysis. The presence of Threatened or Endangered Pacific Northwest salmon is not documented for salt waters near the Project Area. The application of Forest Plan Standards and Guidelines will be adequate to protect stream fishery resources in the Project Area. Some increased boating activity may occur between Ketchikan and Emerald Bay, but will not impact salmon stock. Based on this information, there will be no

effects on any of the listed fish species. Kittlitz's murrelet, a candidate species that has been proposed for listing, is found in glacial habitats, such as Glacier Bay and Tracy Arm. There is no suitable habitat on the Cleveland Peninsula. The Ketchikan/Misty Fiords Ranger District is outside the suspected range of Kittlitz's murrelet (Brockmann, S., FWS, pers. comm.).

Species known or suspected to occur due to suitable habitat available within the Emerald Bay project area were analyzed further. These species are displayed in Table 2.

Table 2. Threatened, Endangered and Sensitive Species Potentially Occurring in Emerald Bay

Common Name	Scientific Name	Status
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered
Queen Charlotte goshawk	<i>Accipiter gentilis laingi</i>	R10 Sensitive
Osprey	<i>Pandion haliaetus</i>	R10 Sensitive
Trumpeter swan	<i>Cygnus buccinator</i>	R10 Sensitive
Peale's peregrine falcon	<i>Falco peregrinus pealei</i>	R10 Sensitive
Goose-grass sedge	<i>Carex lenticularis</i> var. <i>dolia</i>	R10 Sensitive
Edible thistle	<i>Cirsium edule</i>	R10 Sensitive
Davy mannagrass	<i>Glyceria leptoctachya</i>	R10 Sensitive
Wright filmy fern	<i>Hymenophyllum wrightii</i>	R10 Sensitive
Truncate quillwort	<i>Isoetes truncata</i>	R10 Sensitive
Calder lovage	<i>Ligusticum calderi</i>	R10 Sensitive
Bog orchid	<i>Platanthera gracilis</i>	R10 Sensitive
Loose-flowered bluegrass	<i>Poa laxiflora</i>	R10 Sensitive
Unalaska mist-maid	<i>Romanzoffia unalaschcensis</i>	R10 Sensitive
Queen Charlotte butterweed	<i>Senecio moresbiensis</i>	R10 Sensitive

IV. FIELD SURVEYS

Field assessment for the Project Area began in 1998; since then, all harvest units have been visited by one or more field crews including stand exam, wildlife, archeology, fisheries, soil survey and timber crews. Many of these field personnel have knowledge of plants and wildlife species and consistently report observations to the District biologist or botanist.

Two botanical surveys were completed in 1998 by a professional botanist in proposed units 3, 9, and 12. Units were selected for surveying according to two criteria: (1) units were prioritized based on their greater probability for harvest, and (2) aerial photos were then examined for high-likelihood Sensitive Plant habitats in and adjacent to the units. Level 5 "Intuitive Controlled" survey methods were used, the standard method for botanical surveys on National Forest Lands. Additional surveys were completed on the proposed road location in 2003 by a qualified biological technician. Level 4 "general" surveys were completed along the road; Level 5 surveys were completed within areas of suitable sensitive plant habitat. All surveys followed the "Inventory Protocol for Sensitive and Rare Plants for the Ketchikan Area" (Krosse 1997). Detailed methods and results of botanical surveys, along with survey routes, can be found in the Planning Record (Woolwine, 1998, B Kriekhaus 2003). No Sensitive plants were found.

Goshawk surveys followed the protocol established for the Alaska Region Goshawk Inventory Protocol, first issued June 24, 1992. Areas with reported goshawk sightings were the first priority for surveys; even a slight possibility of observing a goshawk increased the chances of finding a nest. A tentative northern goshawk nest found in 2000 was confirmed to be a red-tailed hawk nest. Surveys also included time spent observing from vantage points (Crocker-Bedford 1997). Field crews spend 30 minutes to an hour sitting and looking for goshawks. This increased the chances of observing a goshawk. Field crews completed surveys during 7 days in 1992 and 1998 that included 62 broadcast stations. Additional surveys were done on 3 days in 2000. No goshawks were observed and no goshawk nests found. No incidental goshawk sightings were reported within the Project Area.

Appendix B

Numerous winter swan surveys have been conducted on the District including the Emerald Bay area. Swan locations on the Cleveland Peninsula have been confined to the larger bays and estuaries such as Spacious Bay and Vixen Inlet. No swans have been recorded in Emerald Bay.

V. ANALYSIS OF EFFECTS

Old growth reserves form the basis of the conservation strategy for maintaining viable populations of most species of concern. Analysis is based upon surveys as mentioned above, professional knowledge, and literature review.

FEDERALLY LISTED SPECIES

Humpback Whale

(NMFS 1991, Forest Plan FEIS, Appendix J 1997, Knowles 2000, Reeves et al. 2002, NMFS fact sheet 2003)

Habitat: Humpback whales occur worldwide in all major oceans. They inhabit temperate and tropical waters in the winter (10-23 degrees latitude) and cool, coastal waters spring through fall (35-65 degrees latitude). They generally inhabit waters over continental shelves and in summer are relatively close to shore. They feed in Southeast Alaskan panhandle waters from about May through December, although some have been seen every month of the year. Prey is zooplankton and small schooling fish.

Distribution: Distributed worldwide in all ocean waters. Humpbacks in southeast Alaska are part of the Central North Pacific stock – a relatively distinct population that winters near Hawaii and feeds in the waters of southeast and southcentral Alaska. They are regularly sighted in the Inside Passage and coastal waters of the Southeast Alaska panhandle from Queen Charlotte Sound north to Prince William Sound. Distribution appears to be correlated with the density and seasonal availability of prey, particularly herring (*Clupea harengus*) and euphausiids. Southeast Alaska comprises one of three distinct feeding areas for the Central North Pacific stock. Glacier Bay and Icy Strait are important feeding areas early in the season, when whales prey heavily on herring and other small, schooling fishes. Frederick Sound is important later in summer, when whales feed on swarming euphausiids. During autumn and early winter, humpbacks move out of the Sound to areas where herring are abundant, particularly Seymour Canal. Other areas of southeast Alaska may also be important for humpbacks and need to be evaluated. These include: Cape Fairweather, Lynn Canal, Sumner Strait, Dixon Entrance, the west coast of Prince of Wales Island, and offshore banks such as the Fairweather Grounds.

Abundance: Humpback whales are the most abundant of the eight species of endangered whales that occur in Southeast Alaska waters. Peak numbers of whales are usually found in near shore waters during late August and September, but substantial numbers usually remain until early winter. Overall humpback populations are estimated at roughly 10 percent of historic levels. The Central North Pacific population is estimated at roughly 4,000 whales; data suggests that the population has increased since the early 1980s. The southeast Alaska segment was estimated at 374 in 1985 and 547 in 1992.

Threats: Of the six categories of human impacts identified in the recovery plan, National Forest management activities are generally confined to the categories of acoustic disturbance and habitat degradation. Timber harvest activities include the development and use of Log Transfer Facilities (LTFs), their associated camps and docks, and the movement of log rafts or barges from LTFs to mills. Generally, with the development of LTFs and other docking facilities, there is an associated increase in recreational boating in the immediate vicinity.

Effects: Potential effects include entanglement in cables and other materials associated with LTFs (NMFS letter 10/30/2000). The LTF would be restricted to a small, very localized area of the marine environment. Less than one acre of marine-benthic disturbance would occur. Purchasers will be required to minimize the risk of entanglement. The potential to directly affect whales is minimal. A helicopter to barge (Alt. C) or land-to barge LTF (Alts. B & D) would be used instead of log rafts at Emerald Bay to prevent large quantities of bark from entering the water and affecting prey species. Construction and operation of all LTFs and similar facilities require U.S. Army Corps of Engineer, U.S. Environmental Protection Agency, and State of Alaska tidelands permits. The permitting process requires that construction and operation

maintain water quality in the specific facility locations and that marine circulation and flushing are maintained. Therefore, effects on prey species are expected to be minimal.

Humpback whale response to nearby boating activity varies from no apparent response to pod dispersal, sounding, breaching, evasive underwater maneuvers, and maintaining distance (Forest Plan, Appendix J-14). Disturbance by boat activity has been suggested as one possible cause of observed changes in whale distribution in Southeast Alaska. Direct pursuit of whales by boats and frequent changes in boat speed and direction appear to elicit avoidance behaviors more frequently than other types of boat traffic. Tug boats towing log barges maintain relatively constant speeds and direction. Adverse effects from log barges have not been documented (Forest Plan FEIS, Appendix J 1997). Recreational boat use tends to involve frequent changes in boat speed and direction. These factors appear to elicit avoidance behavior by whales more frequently than other types of boat operation. All activities would be conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales, dolphins, and porpoise. Project related boats and barges would be required to maintain at least a 100 yard distance from humpback whales.

Cumulative Effects: Cumulative effects, as defined by ESA Section 7 are not anticipated. There are no State, tribal, local or private actions planned within VCU 7210 or WAA 1817. There would be no effect.

Determination: Under Alternative A, there would be no effect on humpback whales that commonly occur in the Inside Passage and may be present in waters adjacent to the project area. Based upon small isolated impacts of logging camps/LTFs, a determination of may affect, not likely to adversely affect is made for humpback whales under Alternatives B, C, and D.

Steller Sea Lion

(NMFS 1992, Forest Plan FEIS, Appendix J 1997, Knowles 2000, NMFS 2001, Feldhamer et al 2003)

Habitat: Rookeries (used for breeding and pupping) usually occur on remote islands with difficult human access. Beach substrate ranges from sand to bedrock and sea lions are often found in areas exposed to wind and waves. Haulouts (areas used during other portions of the year) may overlap with rookeries, but also include other rocks, reefs, beaches, jetties, breakwaters, navigational markers, floating docks, and ice flows. Rookeries and haulouts are used consistently year after year. Ocean use ranges from nearshore out to the continental shelf. Schooling fish including walleye pollock, salmon, and eulachon, cephalopod mollusks and invertebrates comprise the majority of the diet; seals and sea otters are occasionally taken.

Distribution: The Steller sea lion ranges from Hokkaido, Japan, through the Kuril Islands and Okhotsk Sea, Aleutian Islands and central Bering Sea, Gulf of Alaska, Southeast Alaska, and south to central California. The centers of abundance and distribution are the Gulf of Alaska and Aleutian Islands, respectively. NMFS listed the Steller sea lion in 1990 in response to population declines observed over the last 31 years (primarily in the former Soviet Union, Gulf of Alaska, and Aleutian Islands). Two distinct stocks were recognized within the United States in 1995: the western US stock, located west of Cape Suckling (144°W) and classified as endangered and the eastern US stock, located east of Cape Suckling and classified as threatened. The project area occurs within the eastern US stock range; analysis is limited to that stock. The closest Steller sea lion rookery is on Forrester Island, west of Prince of Wales Island. Forrester Island has become the largest Steller sea lion rookery in the world. An additional rookery was established on the Hazy Islands in the 1970s. Sea lion haulouts occur on Grindall Island, off the south tip of Kasaan Peninsula on Prince of Wales Island, and on Easterly Island, west of Emerald Bay on Cleveland Peninsula. Easterly Island has been designated as critical habitat.

Abundance: The eastern stock was estimated to be at least 30,400 sea lions in 1999 and the population stable to increasing. Adult Steller sea lion populations in Southeast Alaska increased approximately 30 percent between 1979 and 2000 based upon uncorrected counts at rookeries. The uncorrected counts do not include animals which were at sea. Southeast Alaska population counts were 6,898 in 1982 and 9,862 in 2000.

Threats: Of the threats identified in the recovery plan, few of these factors are regulated by or within the jurisdiction of the Forest Service. Harassment or displacement of sea lions from preferred habitats by human activities such as boating, recreation, aircraft, LTFs, log-raft towing is a concern with regard to

long-term conservation of the sea lion in Southeast Alaska. Rookeries subject to repeated disturbance may be permanently abandoned.

Effects: The closest Steller sea lion rookery is on Forrester Island, west of Prince of Wales Island. The sea lion haulout on Easterly Island is approximately 1.5 miles west of Emerald Bay. During lower tides, the Easterly Island has relatively abrupt dropoffs that could be hazardous to sea lions. Forest Plan Standards and Guidelines direct the Forest Service to prevent and/or reduce potential harassment of sea lions due to activities carried out by or under the jurisdiction of the Forest Service. In consultation with the NMFS, additional procedures to prevent disturbance of the Easterly Island haulout would be implemented for the Emerald Bay project. Project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout. Project-associated aircraft would be required to remain at least 0.5 miles horizontal and 1500 feet vertical distance from the haulout. The Forest Plan also requires that LTFs, camps and other developments be located at least one mile from haulouts. Anchored log barges and floating camps for the Emerald Bay project would be required to maintain this distance from Easterly Island. Sea lions were observed immediately in front of the proposed land to barge LTF site. Sea lions could be temporarily displaced from this area during sale operation, but long-term displacement is not anticipated. Potential disturbances and effects would be similar to those discussed above under humpback whale.

Cumulative effects: None

Determination: There would be no effect on Steller sea lion under Alternative A. Based upon small isolated impacts of logging camps/LTFs and project specific mitigation to avoid sea lions on Easterly Island, a determination of may affect, not likely to adversely affect is made for Alternatives B, C, and D.

Leatherback Sea Turtle

(Behler 1995, Eckert 1995, Knowles 2000, NMFS Recovery Plan 1998, NFMS fact sheet 2003)

Habitat: Open seas, bays, and estuaries. Typically associated with continental shelf habitat and deep waters (>300 feet) and can tolerate a wide range of water temperatures. Nests at night on open, sandy beaches in tropical regions, chiefly on high energy sand beaches with a steep slope and a clear deep water approach. Feed primarily on cnidarians and tunicates. No critical habitat has been designated with the United States due to lack of significant nest sites and lack of important foraging location information.

Distribution: Leatherbacks range from 71°N to 47°S, giving them the most extensive range of any reptile. Pacific Ocean populations range from Chile and New Zealand north to Alaska and the Bering Sea. Commonly seen in Hawaiian offshore waters, beyond the 100-fathom curve, but within sight of land. Occasionally sighted as far north as Newfoundland, British Columbia, and Alaska. Adults are highly migratory.

Abundance: Leatherbacks are considered the most common sea turtle in US eastern Pacific waters in non breeding months. Population estimated at 20,000 to 30,000 females worldwide. Only minor nest occurs within the United States, mainly in Florida; significant nesting populations occur in Mexico, the commonwealth of Puerto Rico, and the US Virgin Islands. No nesting leatherbacks within US jurisdiction in the Pacific Ocean. Overall nesting trends appear stable in the United States, but seriously declining in most other countries.

Threats: Reproductive threats include habitat destruction from erosion or beach-front development, disturbance, and exploitation eggs. Major threats to adults include entanglement in commercial fishing gear and incidental catch, boat collisions, and ingestion of marine debris and contaminants - especially plastics and oil spills. Other threats include marina or dock development in nesting or foraging area.

Effects: No leatherback turtles have been reported in the project vicinity. None of the common threats are regulated by or within the jurisdiction of the Forest Service.

Cumulative effects: None

Determination: there would be no effect on leatherback sea turtles under any alternative.

R10 SENSITIVE SPECIES

Queen Charlotte Goshawk

(Titus et al. 1994, Iverson et al. 1996, Forest Plan FEIS 1997, Flatten et al. 2001, NatureServe 2004, Gov BC 2004)

Habitat: Goshawks generally occur in dense mature or old growth aspen, conifer, or mixed forests. In Southeast Alaska, high volume (vc 6&7) old-growth forest is the preferred habitat, followed by medium volume (vc 5) old growth. The majority of nests are in old growth; however, three nests were found in 90+ year old second growth. Over half of the nests documented by Titus et al. were in Sitka spruce, one-third in western hemlock, and the remainder evenly split between yellow cedar and western redcedar. By contrast, clearcuts, non-forested habitat, and young second growth are generally avoided. Areas near nests include significantly more forest and significantly less non-forest than randomly chosen plots. Most use was on gentle slopes (< 35 percent) below 800 feet elevation in riparian or beach fringe landscape. The median size adult goshawk home range during the breeding season in Southeast Alaska was 9,469 acres (female) and 11,425 acres (male). Based upon telemetry work by Flatten et al., the maximum size of nest areas in Southeast Alaska is 1,987 acres. Nest areas were defined as all nest sites and alternate nests within a home range. Distances between active nests within the nest area ranged from 0.03 and 2.0 miles. Individual nest sites (containing nest tree, prey-handling areas, roosts, and perches) were generally 12-37 acres. Important food items in southeast Alaska include Steller's jay, grouse, varied thrush, red squirrel, and woodpeckers.

Distribution: The Queen Charlotte subspecies occurs in coastal temperate rainforests on the Queen Charlotte Islands and Vancouver Island in British Columbia and from the Alexander Archipelago in Alaska north to Baranof Island and Prince William Sound. In Southeast Alaska, the species appears to be non-migratory, although some adults have distinct winter and breeding areas.

Abundance: Goshawks generally occur in low densities in Alaska. Estimates of the goshawk population in Southeast Alaska range from 100 to 381 pairs. Since 1992, intensive inventory effort has been spent to find goshawks in Southeast Alaska. As of 2001, only 61 nesting areas had been found throughout the 30,000 mi² study area. Occupancy rate of nest sites averaged 28% per year with a low of 13% for the Ketchikan area of the Tongass to a high of 53% for the Chatham area. However, there was a high probability that active nests were not detected without the use of telemetry. Mean productivity was 2 fledglings per nest with a 93% success rate of ≥ 1 young fledged. Within the Ketchikan Area (southern southeast Alaska) 14 nest areas were recorded on NFS lands. In short, research specific to southeast Alaska concluded that goshawks are uncommon in this region and nesting densities lower than other areas (Flatten et al. 2001).

Threats: Loss of old-growth habitat due to logging. Low prey diversity results in higher sensitivity to habitat modification which may further reduce prey diversity and abundance. Also is susceptible to human disturbance during nesting period. Low reproductive rate makes recovery slow.

Recent Court Findings: A central assumption underlying FWS' not warranted decision is that the persistence of the goshawk is related to the amount of productive old growth forest that remains intact. Because the range of protective mechanisms in the reserves and the matrix would preserve 75% of the original productive old growth forest in southeast Alaska, FWS concludes that the goshawk is not likely to become extinct in southeast Alaska. John Facciola, US Magistrate Judge, concluded that because the best scientific data available indicates that this subspecies is not endangered or threatened, the decision to not list this subspecies based on its status in southeast Alaska is neither arbitrary nor capricious. Ricardo Urbina, US District Judge, United States District Court For The District Of Columbia, adopted the recommendations of Judge Faccioli on May 27, 2004, and denied the plaintiffs' motion for summary judgment concerning the need for listing of goshawks in Alaska. However, he did remand the British Columbia segment and required FWS to further evaluate the status of goshawks on Vancouver Island.

Effects: No goshawk nests have been found in or near the Emerald Bay project area. However, goshawks are extremely difficult to locate and it is possible that the project area includes one or more breeding territories. Goshawks are sensitive to timber harvest and all action alternatives would harvest potential goshawk habitat. Impacts could occur to individual goshawks if timber harvest activities or roads

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correspond with unidentified goshawk nesting stands or key foraging stands. The Project would increase the amount of early seral forest, thus reducing the overall landscape habitat quality. Avoidance of clearcuts is well documented. Partial cut units would leave about 50 percent of the net volume based upon diameter classes (see Silvicultural section). Resulting stand composition would vary, but would not provide high value goshawk habitat. Table 3 displays the amount of high value nesting habitat that would be retained under each alternative.

Table 3. Goshawk Habitat in VCU 7210 (Moderate to High Volstrata POG < 800 feet elevation)

	Alt A	Alt B	Alt C	Alt D
Remaining habitat acres	1,859	1,617	1,601	1,601
Percent reduction	0%	-13%	-14%	-14%

Source: FS GIS Vol Strata

Cumulative effects: the selective harvesting at Emerald Bay is the only concentrated harvest known to have occurred in the past in WAA 1817; there are no other present or foreseeable activities that would affect goshawks or their habitat. Cumulative effects would reduce goshawk habitat by 2 percent across the WAA. This would not impact goshawk distribution.

Recommendations: Any goshawk nests found during field reconnaissance or unit layout would be protected from harvest by implementing Forest Plan Standards and Guidelines for goshawks. These require the maintenance of an area of not less than 100 acres of productive old-growth forest (if it exists) generally centered over the nest tree or probable nest site, preferably with a multi-layered, closed canopy and providing foraging opportunities for young goshawks. No commercial timber harvest is permitted, and no continuous disturbance likely to result in nest abandonment is permitted within the surrounding 600 feet from March 15 to August 15.

Determination: The Emerald Bay project may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide.

Osprey

(Udvardy 1977, Terres 1987, VanDaele 1994; Forest Plan FEIS 1997, NatureServe 2003).

Habitat: Limited to areas adjacent to larger lakes, rivers, beaver ponds, coastal beaches, or large estuaries with abundant fish populations. Needs large trees/snags or power poles for nesting. In Southeast Alaska, osprey nests usually occur in broken-top spruce trees or western hemlock snags. Nests are located within the beach fringe and averaged 0.7 miles (range 0.25 to 1.4 mi) from the nearest saltwater. Feeds almost exclusively on fish although will occasionally eat small rodents and birds, snakes and other amphibians.

Distribution: Osprey are found along lakes, rivers, and seacoasts throughout much of Canada and the United States. In Alaska, they are found south of the Brooks Range.

Abundance: Osprey are recovering in many areas following severe declines from organochlorides and appear to be reoccupying and/or expanding from historical habitat. They are naturally rare in Southeast Alaska and may be at the periphery of the range. A total of 16 osprey nesting areas have been documented on the Tongass National Forest: 15 in the Stikine area and 1 in the Ketchikan area. Based upon historical information, population numbers are low, but apparently stable. Competition with bald eagles may be a limiting factor.

Threats: Adversely affected by stream or waterway alterations that reduce fish populations or visibility in areas traditionally used as feeding areas. Susceptible to accidents, including drowning, breaking wing by hitting water, and electrocution. Highly susceptible to egg thinning by pesticide contamination.

Direct effects: None. No ospreys have been observed in the project area. The lakes in the Emerald project area are small and do not support fish populations. Beach habitat is protected by the beach/estuary buffer. The LFT would impact less than 1 acre of potential nesting habitat and would have no measurable impact

on osprey.

Cumulative effects: None.

Determination: There would be no impact to ospreys under any alternative.

Trumpeter swan

(Bellrose 1980, Terres 1980, Forest Plan FEIS 1997, FWS 2001, ADF&G notebook series 2003, NatureServe 2003)

Habitat: Ponds, lakes, and marshes with emergent vegetation for breeding; winter in sheltered bay and estuaries, lakes, and ponds. Large nests built of reeds, grasses, bulrushes, and sedge. Trumpeter swans pair for life and nesting sites are reused in successive years. Many built on top of muskrat houses or beaver lodges. Prefer shallow, slow-moving water for feeding where they feed on aquatic vegetation.

Distribution: Widespread through the western US and Canada. Typically, it is a bird of temperate region forests and prairies. Trumpeter swans breed in Alaska and winter along the Pacific Coast from the Alaska Peninsula to the mouth of the Columbia River. The breeding range is concentrated along the Alaska Gulf coast and other wetland areas (Interior, Southcentral, Gulf of Alaska, and Chilkat basin), where they take advantage of open waters of saltwater estuaries and freshwater lakes and rivers. The largest population on the Tongass National Forest occurs on the Yakutat Forelands where 155 individuals were counted. Most swans migrate through Southeast Alaska in the spring and fall on their way to and from breeding grounds. Swans that winter here usually move to large lakes and estuaries once the weather turns cold. They arrive in mid-October and their numbers increase as migration continues. Swans typically leave for the breeding grounds by mid-April. Nests of different pairs at least ½ mile apart and defends breeding territory of about 5-10 acres against other swans.

Abundance: Due to intense exploitation by market hunters in the Lower 48 States, the trumpeter was considered an endangered species by the early 1900s. Trumpeters were first identified in Alaska in 1850 but, it was not until 1954 that breeding trumpeters were discovered. An extensive survey of known Alaska breeding habitat was first flown in 1968 and 2,844 trumpeters counted. The 1990 census indicated over 13,000 trumpeters in Alaska. This increased to 17,155 in 2000. Currently, Alaska contains over 85 percent of the world's breeding population.

Threats: Young subject to drowning, trampling by adults, and parasites. Both young and adults vulnerable to lead poisoning and avian cholera. Serious potential for disease outbreaks on reduced winter ranges. Sensitive to human disturbance (float planes, boats, etc), pollution, lead poisoning, illegal hunting on winter and breeding areas. Water quality important to species of aquatic and emergent plants used as food.

Direct effects: No nesting is known to occur within the project area. Although swans have been recorded wintering on larger bays such as Spacious Bay and Vixen Inlet, no swans have been recorded at Emerald Bay. This is likely due to its small size and potential for freezing in harsh winters. Most swans typically leave Southeast Alaska in April for the breeding grounds further north. This is also the start of the normal timber operating season so minor overlap would occur. Riparian standards and guidelines and BMPs protect water quality. Other threats are outside the jurisdiction of the Forest Service.

Cumulative effects: None

Determination: There would be no impact to trumpeter swans under any alternative.

Peale's peregrine falcon

(Terres 1980, Forest Plan FEIS 1997, NatureServe 2003)

The Peale's subspecies of the peregrine falcon is not listed as endangered or threatened, but it is covered by a provision of the "similarity of appearance" which broadens the scope of protection for all peregrine falcons.

Habitat: Coastal beaches, tidal flats, reefs, islands, marshes, estuaries and lagoons. Nests mostly found on ledges of vertical rocky cliffs in the vicinity of seabird colonies; some nests on grassy benches of rocky

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bluffs. Heights of nests range from 12 to 366 meters. Many nests sheltered by overhanging grass, sods, rocks, tree roots, salal or mosses. In Alaska, Peale's peregrine falcons nest on cliffs from 65 to 900 feet in height along the outer coast of the Gulf of Alaska. Nest distribution is closely associated with large seabird colonies located on the outer coasts or nearby islands. Schempf (1992, p. 6) found that seabird remains, including marbled murrelet, ancient murrelet and Cassin's auklet, comprised most of the prey items found at eyries in Southeast Alaska.

Distribution: Occurs in Asia and North America. North American population occurs from the Aleutian Islands south to Queen Charlotte Island. Winters from the Queen Charlotte Islands and southwestern British Columbia, south along the coasts of Washington, Oregon, and California, rarely to northern Baja California. Most breeding adults apparently remain on the breeding grounds, although some adults and juveniles do migrate;

Abundance: An estimated 600 breeding pairs of Peale's peregrines are believed to occur in Alaska and an additional 100 pairs in British Columbia. Thirty six nests have been located in southeast Alaska of which 32 are on National Forest Service lands. Information is limited, but FWS surveys indicate that populations are stable.

Threats: Potential global threats include loss of prey to oil spill contamination, sublethal poisoning of seabird prey by pesticide and industrial pollutants, introduced predators (eg. rats) on islands with colonies of seabird prey.

Direct effects: The nest distribution of this subspecies is closely associated with large seabird colonies located on the outer coasts or nearby islands and seabirds are believed to be the major prey of the falcon. The project area does not lie along the outer coast of the Gulf of Alaska and Peale's peregrine falcon have not been documented to occur near the project area. No seabird colonies or potential nesting cliffs exist near the Project Area. None of the identified threats are regulated by or within the jurisdiction of the Forest Service.

Cumulative effects: None.

Determination: Due to species absence, there would be no impact to Peale's peregrine falcon under any alternative.

Goose-grass sedge

(Welsh 1974, USDA 1994, USDA-NRCS 2002, NatureServe 2003, FEIS 2003)

Habitat: This sedge is an alpine/subalpine plant that occurs in or along muskegs, wet meadows, bogs, and ponds. Also found in shallow, wet, stoney soil and gravel bars adjacent to streams, lakes, and seeps. It is a perennial sedge that grows in dense low tufts from ascending rhizomes and forms clumps up to 10 inches in diameter, 1 to 13 inches tall. Pioneer species that readily colonizes exposed mineral soil.

Distribution: Occurs in the coastal mountains of south-central and southern Alaska and British Columbia and in the Rocky Mountains from Jasper, British Columbia, south to Glacier National Park. Additional occurrences in southwest Alberta and southern Yukon Territory. Known to occur on the Tongass National Forest on the Juneau, Hoonah, and Ketchikan portion of the Ketchikan/Misty Fiords Ranger Districts; suspected to occur elsewhere on the Tongass.

Abundance: Distinct variety as described by Standley in 1981, but questioned by others. Standley reported that "few collections of var. *dolia* are known". There are only 10 known occurrences of the species in Alaska as of 2004. One location on Cleveland Peninsula.

Effects: None of the proposed units are in alpine or subalpine habitats. Streambanks and lakeshores are protected by riparian buffers. No occurrences of goose-grass sedge occur in the Emerald Bay project area.

Cumulative Effects: None

Determination: There would be no impact under any alternative due to species absence in the project area..

Edible thistle

(Hulten 1968, Muller 1991, USDA 1994, USDA-NRCS 2002, NatureServe 2003)

Habitat: Occurs in wet meadows and open woods, and along glacial streams.

Distribution: Endemic from southern southeast Alaska southward into British Columbia, Washington, Oregon, and Idaho. Known to occur on the Tongass NF on the Ketchikan/Misty Fiords Ranger District within Misty Fjords and near Hyder and suspected to occur on Wrangell and Petersburg districts.

Abundance: Common within its overall range. Four populations have been found in Alaska.

Effects: None. Species was not found in the project area. No glacial influenced lakes or streams occur in the project.

Cumulative Effects: None

Determination: There would be no impact due to species absence in the project area.

Davy mannagrass

(Hulten 1968, Welsh 1974, Muller 1991, USDA 1994, Bella 2002, NatureServe 2003, Royal BC Museum 2003)

Habitat: Wetland obligate. Grows in wet lowland habitats including swamps and stream, pond, and lake margins. Prefers shallow standing or mostly still water, and is a facultative wetland plant. Various populations were found in backyards, ditches alongside residences, and waste areas such as the edges of empty lots. (Bella).

Distribution: Regional endemic in the Wrangell area. Disjunct populations south to western British Columbia, Washington, Oregon, and California. Known to occur on the Tongass NF on Ketchikan/Misty Fiords (Carroll Inlet), Sitka, Petersburg, Wrangell and Thorne Bay Ranger Districts and suspected to occur on Craig District.

Abundance: unknown, but seldom found throughout range (USDA 1994). Twelve locations recorded in Southeast Alaska. Appears to recolonize disturbed areas as a pioneer species in many cases. Numerous large populations all over the municipality of Wrangell with additional populations common around Petersburg. Various populations were found in backyards, ditches alongside residences, and waste areas such as the edges of empty lots. (Bella).

Threats: Appears to utilize [or at least tolerate] some disturbance. As cited in Bella (2002) Davy mannagrass appeared in more mitigated wetlands in which some disturbance and mitigation (revegetation or other work) had occurred than naturally occurring plots. Various populations were found in backyards, ditches alongside residences, and waste areas such as the edges of empty lots. Very palatable, the sweet seed is favoured by many waterfowl.

Effects: None. Stream and lake habitat is protected by Forest Plan riparian standards and guidelines. Muskeg ponds are generally avoided; although the road crosses sections of lower quality wetlands, pond area are avoided. None of the known populations are near the project area.

Cumulative Effects: None

Determination: No populations were found during Emerald Bay surveys. There would be no impact due to species absence in the project area.

Wright filmy fern

Habitat: This species prefers humid shaded boulders, cliffs and damp woods and occurs at the base of trees and rock outcrops or in crevices of tree trunks.

Distribution: Known from a number of locations in Japan, Korea, and Russian Far East. It occurs in coastal and insular areas of southeast Alaska and British Columbia, and has been documented to occur on Biorka and Mitkof Islands. Known to occur on the Tongass NF on Petersburg and Sitka Ranger Districts.

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Suspected to occur on Wrangell, Craig, Thorne Bay, Ketchikan/Misty Fiords, and Hoonah Districts.

Abundance: 13 occurrences documented in North America, but species possibly overlooked rather than rare. Three documented occurrences in Alaska (1994). Four additional occurrences found in 2005 on Baranof Island. This species is more common in Asia.

Effects: None. Known locations are far removed from the project and no plants were found during project surveys.

Cumulative Effects: None

Determination: There would be no impact due to species absence in the project area.

Truncate quillwort

(Hulten 1968, Muller 1991, USDA 1994, NatureServe 2003)

Habitat: This perennial aquatic grows immersed in shallow freshwater lakes and ponds.

Distribution: Occurs from Prince William Sound to Kodiak and on Vancouver Islands, British Columbia, and Alberta. Known to occur on the Sitka Ranger District of the Tongass NF on Baranof Island. Suspected to occur on all other districts.

Abundance: Only a few, widely isolated populations are known to exist. Taxonomically questionable, being considered a sterile hybrid rather than a species. Only 2 documented occurrences in Alaska as of 2004.

Effects: None. Stream and lake habitat is protected by Forest Plan riparian standards and guidelines. Known occurrences are well removed from the project area.

Cumulative Effects: None

Determination: No populations were found during Emerald Bay surveys. There would be no impact due to species absence in the project area.

Calder lovage

Habitat: This species occurs on moist to wet limestone substrates in subalpine to alpine meadows, meadows and forest edges. In Canada, it is rarely found near sea level. Species is taprooted perennial herb.

Distribution: Endemic to the Queen Charlotte Islands, it is also found on northern Vancouver Island, British Columbia. In Alaska, known to occur on Kodiak Island and on the Tongass NF on Craig Ranger District (Dall Island and on southern Prince of Wales Island on Bokan Mountain). It is suspected on all other districts.

Abundance: Twenty four occurrences have been documented in Southeast Alaska as of 2004.

Effects: None. No harvest is proposed in alpine or subalpine habitats. No populations have been found anywhere on the Cleveland Peninsula including the Emerald Bay project area.

Cumulative Effects: None

Determination: There would be no impact due to species absence.

Bog orchid

(Hulten 1968, Welsh 1974, USDA 1994, NatureServe 2003)

Habitat: This species grows in upper beach meadows, open woods, muskegs, wet meadows. On the Tongass National Forest, it is most commonly associated with western redcedar. Indeed, recorded populations of greater than 20 individuals have only been found in stands containing western redcedar (Tongass Rare Plant database). Although specific research into this area is lacking, the strong habitat affinity suggests that some symbiont, whether mycorrhizae or pollinator, may also have an association with

these trees.

Distribution: Occurs in or near coastal and insular southern Alaska from the easternmost Aleutians eastward through the Panhandle; occurs throughout western US and Canada. *Platanthera orbiculata* has only been found in the southern third of the Forest, on the Ketchikan-Misty Fiords, Craig, and Thorne Bay Ranger Districts. On these districts, it is the most commonly observed sensitive plant.

Abundance: Between 1996 and 2002, this orchid was sighted 32 times on the Tongass National Forest out of 326 surveys; 78% of these occurrences were on the Ketchikan-Misty Fiords Ranger District (Tongass Rare Plant and Rare Plant Survey databases). During the summer of 2004, there were an additional 11 sightings on the Ketchikan-Misty Fiords Ranger District.

Effects: Some potential habitat could be altered by logging areas that contain western redcedar and by road construction through wetlands. Suitable habitat remains in the adjacent old growth reserves. Although this is the most commonly found R10 sensitive plant, no populations were found in the project area.

Cumulative Effects: None

Determination: No populations were found during Emerald Bay surveys. There would be no impact due to species absence in the project area.

Loose-flowered bluegrass

(Hulten 1968, Welsh 1974, USDA 1994, NatureServe 2003)

Habitat: Occurs in upper beach meadows and open forests.

Distribution: Occurs from southern southeast Alaska southward through Oregon. Several sightings have been documented in southeast Alaska at Sandborn Canal at Port Houghton, Cape Fox Springs, and Admiralty Island. Known to occur on the Tongass NF on Hoonah, Admiralty, Sitka, Juneau, Petersburg, Ketchikan/Misty Fiords districts, and suspected to occur on Craig, Thorne Bay, and Wrangell.

Abundance: Over 200 populations in a fairly large range, although most of the known populations occur in Oregon. They are in an area where there is major timber harvest activity, of which the species tolerance is not known. Eight populations have been found in Southeast Alaska as of 2004.

Effects: Species has not been found on Cleveland Peninsula or the project area. Beach habitat is protected by beach/estuary buffers.

Cumulative Effects: None

Determination: There would be no impact due to species absence in the project area.

Unalaska mist-maid

(Hulten 1968, Welsh 1974, Muller 1991, NatureServe 2003)

Habitat: This species occurs in moist places on beach terraces, wet rock outcrops, rock crevices, and along streambanks.

Distribution: Endemic to eastern Aleutians, Alaska Peninsula, Prince William Sound, and Kodiak Island; also in southeastern Alaska. Known to occur on the Tongass NF on the Sitka Ranger District; suspected to occur on Craig, Petersburg, Juneau, and Yakutat.

Abundance: Although there are currently less than 20 separate locations known with certainty, others are believed likely. Population at Unalaska described as common (1994). Only one population recorded in Southeast Alaska.

Effects: None. Streambanks and lakeshores are protected by riparian buffers. Beach habitat is protected by beach/estuary buffers.

Cumulative Effects: None

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Determination: No populations were found during Emerald Bay surveys. There would be no impact due to species absence in the project area.

Queen Charlotte butterweed

(Muller 1991, USDA 1994, Lipkin & Murray 1997)

Habitat: Occurs in subalpine to alpine habitats on open, rocky, or boggy slopes, rocky heaths, or grassy talus slopes, generally on limestone substrate. Also reported from near sea level in Canada.

Distribution: Largest populations on the Queen Charlotte Islands and northern Vancouver Island in British Columbia. In Alaska, it is known to occur on the Tongass NF on Coronation, Dall, Heceta, and southern Prince of Wales islands on Craig and Thorne Bay Ranger Districts. Suspected to occur on Petersburg and Sitka.

Abundance: Only 30 documented occurrences globally in (1994). Fifteen occurrences known from Prince of Wales and nearby outer islands as of 2004; locally common at many known locations.

Effects: Proposed action alternatives would not occur in alpine or subalpine habitats. Emerald Bay is outside the known range. Therefore, no impacts would occur.

Cumulative Effects: None

Determination: There would be no impact due to species absence in the project area.

VI. SUMMARY OF DETERMINATIONS

The determination of effects on Federally listed species and Region 10 Sensitive Species in this BA/BE were made as the result of the information gathered in the prefield review, field reconnaissance and effects analysis. The basis for these determinations was potential habitat, distribution, effects from forest activities and proposed mitigation. Any non-compliance with mitigation would jeopardize the determination and could lead toward trends to Federal listing.

Table 4. Summary of Species Determinations.

Federally Listed Species	No Effect	Beneficial Effect	Not Likely to Adversely Affect	May Adversely Affect
Humpback whale	Alt A		Alts B, C, & D	
Steller sea lion	Alt A		Alts B, C, & D	
Leatherback sea turtle	All Alts.			
R10 Sensitive Species	No Impact	Beneficial Impact	May Impact Individuals ¹	Likely to Impact Population ²
Queen Charlotte goshawk	Alt A		Alts B, C, & D	
Osprey	All Alts.			
Trumpeter swan	All Alts.			
Peale's peregrine falcon	All Alts.			
Goose-grass sedge	All Alts.			
Edible thistle	All Alts.			
Davy mannagrass	All Alts.			
Wright filmy fern	All Alts.			
Truncate quillwort	All Alts.			
Calder's lovage	All Alts.			
Bog orchid	All Alts.			
Loose-flowered bluegrass	All Alts.			
Unalaska Mist-maid	All Alts.			
Queen Charlotte butterweed	All Alts.			

¹ may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide.

² Likely to result in a loss of viability on the Planning Area, in a trend to federal listing, or in a loss of species viability rangewide.

VII. MITIGATION

Standards and guidelines have been identified in the Forest Plan that provide direction for maintaining Federally listed and Region 10 Sensitive Species and their habitat. Emerald Bay will follow the objectives, standards, and guidelines that are applicable to species and habitats found within the analysis area. Forest Plan mitigation is incorporated into this document by reference and forms the basis for the determinations. Specific mitigation is emphasized below:

- To prevent disturbance to sea lions (agreement with NMFS 12/18/2000), project-associated boats and barges in transit would be required to remain at least 200 yards from the haulout on Easterly Island. Floating camps and helicopter to barge operations (Alternative C) would be required to maintain a 1 mile distance. Project-associated aircraft would be required to remain at least 0.5 miles horizontal and 1500 feet vertical distance from the haulout.
- Log transfer facilities (LTFs) will be kept clear of dangling cables, ropes, and other materials that could entangle humpback whales (NMFS letter 10/30/2000). Consistent with the Marine Mammal Protection Act, project-associated boats and barges in transit are required to remain at least 100 yards from humpback whales.
- In the event that any TES species is found during layout, it will be reported to the District Biologist/Botanist and the applicable standards and guidelines applied.

VIII. CONSULTATION WITH U.S. FISH AND WILDLIFE SERVICE

Concurrence on the original BA/BE was received from the US Fish and Wildlife Service on October 17, 2000 and from NMFS on January 12, 2001. Notice was sent to NMFS and FWS on August 4, 2005 asking if they wish to review the updated BA/BE. Determinations and mitigation were included. FWS replied on August 8, 2005 stating that they did not need to review the BA/BE. NMFS concurred with Forest Service findings on Sept. 6, 2005.

Appendix B

ATTACHMENT 1. Threatened and Endangered Species occurring in Alaska.

Common Name	Scientific Name	ESA Status	Occurrence on the Tongass NF or inside passage waters
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered	Common
Steller sea lion (eastern)	<i>Eumetopias jubatus</i>	Threatened	Common
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	Occurs infrequently in offshore waters
Snake River Spring / Summer / Fall Chinook Salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	Does not occur* in inside waters; accidental occurrence outside waters off west coast
Snake River Sockeye Salmon	<i>Onchorhynchus nerka</i>	Endangered	Does not occur*
Upper Columbia River Spring Chinook Salmon	<i>Onchorhynchus tshawytscha</i>	Endangered	Does not occur*
Upper Columbia River Steelhead Trout	<i>Onchorhynchus mykiss</i>	Endangered	Does not occur*
Puget Sound Chinook Salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	Does not occur*
Lower Columbia River Chinook Salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	Does not occur*
Upper Willamette River Chinook Salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	Does not occur*
Middle/Lower Columbia River Steelhead Trout	<i>Onchorhynchus mykiss</i>	Threatened	Does not occur*
Upper Willamette River Steelhead Trout	<i>Onchorhynchus mykiss</i>	Threatened	Does not occur*
Snake River Basin Steelhead Trout	<i>Onchorhynchus mykiss</i>	Threatened	Does not occur*
Blue whale	<i>Balaenoptera musculus</i>	Endangered	Does not occur*
Bowhead whale	<i>Balaena mysticetus</i>	Endangered	Does not occur*
Fin whale	<i>Balaenoptera physalus</i>	Endangered	Does not occur*
Right whale	<i>Balaena glacialis</i>	Endangered	Does not occur*
Sei whale	<i>Balaenoptera borealis</i>	Endangered	Does not occur*
Sperm whale	<i>Physeter macrocephalus</i>	Endangered	Does not occur*
Steller sea lion (western)	<i>Eumetopias jubatus</i>	Endangered	Does not occur
Eskimo curlew	<i>Numenius borealis</i>	Endangered	Does not occur
Short-tailed albatross	<i>Phoebastria albatrus</i>	Endangered	Does not occur
Spectacled eider	<i>Somateria fischeri</i>	Threatened	Does not occur
Steller's eider	<i>Polysticta stelleri</i>	Threatened	Does not occur
Aleutian shield fern	<i>Polystichum aleuticum</i>	Endangered	Does not occur

*Not known to occur in Southeast Alaska Inside waters

Source: compiled from Fish and Wildlife Service and NOAA Fisheries websites 2005

Appendix C

Subsistence Hearings

Appendix C

Subsistence Hearings Transcripts

Introduction

The Forest Service is required to hold subsistence hearings under ANILCA Sec. 810 if it is concluded that the Proposed Action "may impose a significant possibility of a significant restriction on subsistence resources or uses." Such a finding requires that the Proposed Action 1) be modified to remove the significant restriction, 2) be dropped, or 3) proceed with the stipulation that formal subsistence hearings be held and subsequent findings published.

A "significant restriction on subsistence uses" means the Proposed Action can be expected to result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources. Reductions in the opportunity to continue subsistence uses generally are caused by reductions in abundance or major redistribution of resources, substantial interference with access, or major increases in the use of those resources by non-rural residents.

The Forest Plan FEIS provides a comprehensive analysis of subsistence resources and potential effects, both Tongass-wide and for each rural community of Southeast Alaska. Under full implementation of the Forest Plan, Forest-wide, the only subsistence resource that may be significantly restricted in the future is subsistence use of deer (Forest Plan FEIS, pp. 3-224 to 3-229). Therefore, subsistence hearings were held for this project.

Subsistence Use in the Project Area

The analysis for the Emerald Bay timber sale project concluded that subsistence use of this area is low. Impacts to subsistence resources, other than deer, would be negligible; therefore, only deer was analyzed in detail in the Subsistence section of Chapter 3. See the Subsistence section for a more detailed discussion.

The Emerald Bay project would not pose a significant possibility of a significant restriction on any subsistence resource within the project area, from past, current and reasonably foreseeable future actions.

Subsistence Hearings

The Forest Service held subsistence hearings for the Emerald Bay Timber Sale in two communities: Ketchikan (October 25, 2004), and Wrangell (October 27, 2004). The hearing in Meyers Chuck was held by teleconference; written comments were accepted. One person testified in Ketchikan; no testimony was received from either Wrangell or from Meyers Chuck, the community that relies the most on WAA for subsistence resources. This confirms that subsistence use of the project area is low.

The transcripts for the subsistence hearings for the Emerald Bay Timber Sale are published in this appendix, with a list of the individuals who testified (Table C-1).

Table C-1
Subsistence Hearing Testimony

Name	Hearing
James Stanley	Ketchikan

Ketchikan Subsistence Hearing, October 25, 2004, Ketchikan

Emerald Bay Subsistence Hearing
10/25/04
6:00 PM to 8:00 PM

Attendees:

Jill Reeck
Pat Haley (Facilitator)
Clyde Pasterski of SEAK Professional Services LLC

The Ketchikan-Misty Fiords Ranger District held a subsistence hearing for the Emerald Bay SEIS. The hearing was in two parts. There was a special conference call session from 6 PM to 7 PM targeting the Meyer Chuck community. We open the phone line at 6 PM. There were no calls. The second part was schedule for in person testimony. There was only one testimony taken from a Mr. James Stanley. We closed the hearing at 8:05 PM.

PUBLIC HEARING
Emerald Bay Subsistence Hearing
October 25, 2004
Misty Fjord Ranger District Office
3031 Tongass Avenue
Ketchikan, Alaska 99901
PROJECT LEADER: Pat Haley
6:00 p.m. - 8:00 p.m.

APPEARANCES:

Pat Haley
Project Leader
Misty Fjord Ranger District
3031 Tongass Avenue
Ketchikan, AK 99901

Table Of Contents

James Stanley

Page 5

PROCEEDINGS

THE RECORDER: We're on record.

HEARING OFFICER: I will open the formal call-in hearing at this time. Good evening, this is a Subsistence Hearing to receive testimony of the alternatives proposed in the recently published Emerald Bay Supplemental Draft Environmental Impact Statement. This is an opportunity for the public to provide testimony about the effects of the alternatives on subsistence uses and related economic and social effects on your community, or about other subsistence aspects of the draft SEIS.

My name is Pat Haley and I will serve as a Hearing Officer for this proceeding. I want to thank you for all calling. The intent of this hearing is to make an official record of your testimony regarding the draft SEIS. We appreciate your interest and effort to be here, and we want to assure you that we will do our part to listen and record your testimony. For the record today is October 25, 2004, the time is 6:10 p.m. and this hearing is being held at the Ketchikan Misty Fjord Ranger District conference room.

Public notifications of the hearing was made by legal notice in the Ketchikan Daily News and the Wrangell Sentinel and flyers sent to the residents of Meyers Chuck.

There are some procedures I would like to mention. The call-in hearing is scheduled until 7:00. If testimony is completed earlier we'll keep the record open until that time allows others to testify. And what we'll probably do is recess and then if we have additional people, we'll reopen. If you haven't already done so please sign in and indicate if you would like to present

testimony. If individuals have the same testimony as others, the presenter can simply state that they stand with presenter X or presenter Y. Written testimony is just as acceptable as oral presentation.

Formal public comment on all aspects of the draft SEIS will be accepted until November 29, 2004 which is when the public comment period is scheduled to close.

We are recording this hearing so that we can prepare a transcript along with all other public comments and testimony. The transcript will be used by the Forest Service during the preparation of the Final SEIS and the Record of Decision for the Emerald Bay Timber Sale.

A opportunity to discuss and obtain information about the draft supplemental EIS was provided during the question and answer period that precedes this hearing. We will not be taking questions during the formal hearing. Testimony will be taken in the order received on the sign in sheet. When called -- when your name's called please come forward, give me written testimony you may have and state your name and affiliation, if appropriate and proceed with the testimony. At this time we have no others to present testimony so we will go into recess. And again we will be here until 7:00 p.m. it is currently 6:10 p.m. We'll be going into recess now.

THE RECORDER: You are off record.

THE RECORDER: You are on record.

HEARING OFFICER: At this time I'm going to close the call in Subsistence Hearing for the Emerald Bay SEIS. It is now 7:00 and we're closing the hearing for the call in.

THE RECORDER: Off record.

THE RECORDER: You're on record.

HEARING OFFICER: At this time at 8:00 p.m. we are reopening the formal hearing. The next person to give testimony tonight is James Stanley.

JAMES STANLEY testified as follows:

Thank you Pat. My name is James Stanley, S-t-a-n-l-e-y. And I'm here speaking on behalf of Saanya Kwaan Tei Kweidi Hootz Kudee Hit. I know what you're thinking. The Brown Bear's, Brown Bear's from Saxman, Saxman Brown Bear's. Well anyway regarding the Cleveland Peninsula area the only thing I see is a -- would be of interest as far as Wrangell and my understanding is there's a meeting scheduled for that. As far as Cleveland itself I don't see any problems. Looks like it would be a pretty good all around situation. As far as subsistence goes my people have no holdings in that area. The only thing I need to say is be safe out there when you're doing your wood cutting, and if you do come across something you're really not sure of you may want to bring it up to the attention of your supervisor or the archeologist and let them work with it. Really you can just decide to go charging through somewhere, you may disturb something and it may have some very serious recourse that's not on the norm so to speak. That's it. Xoonah cheesch, thank you.

HEARING OFFICER: At this time there is no other people signed up to give testimony so I'm going to close the Subsistence Hearing. It is now 8:00 o'clock and the meeting is closed.

THE RECORDER: You're off record.

(Off record)

TRANSCRIBER'S CERTIFICATE

I, Clyde E. Pasterski, hereby certify that the foregoing pages numbered 3 through 7 is a verbatim transcript of the Emerald Bay Subsistence Hearing held at the Misty Fjord Ranger District, 3031 Tongass Avenue at Ketchikan Alaska, transcribed by me from a copy of the electronic sound recording to the best of my knowledge and ability.

Date

Clyde E. Pasterski.
Transcriber

NOTE: Original transcription format numbered seven pages. The content of that transcription is reprinted in its entirety here.

Wrangell Subsistence Hearing, October 27, 2001, Wrangell

Emerald Bay Subsistence Hearing
October 27, 2004
7:00 p.m. - 8:00 p.m.

A Public Hearing, as provided by Section 810 of ANILCA, to receive subsistence testimony on the alternatives proposed in the **Emerald Bay Timber Sale** Supplemental Environmental Impact Statement was held Wednesday evening, October 27, 2004, from 7:00 to 8:00 PM at the Wrangell Nolan Museum South Classroom. The subsistence hearing was preceded by an open house from 6:00 to 7:00 PM.

Public notification of the Hearing was made by publication in the Wrangell Sentinel and Ketchikan Daily News.

Pat Haley, Jill Reeck, and Jamie Roberts represented the US Forest Service.

No one from the public attended either the open house or the subsistence hearing.

<u>/s/Pat Haley</u> _____	<u>October 27, 2004</u>
Pat Haley, IDT Leader	Date

<u>/s/ Jamie Roberts</u> _____	<u>October 27, 2004</u>
Jamie Roberts, IDT Leader	Date

HEARING OFFICER SCRIPT October 27, 2004

Introductions - Introduce all Forest Service related personnel and their roles.

Good evening. This is a Public Hearing, as provided by Section 810 of ANILCA, to receive subsistence testimony on the alternatives proposed in the Emerald Bay Timber Sale Supplemental Environmental Impact Statement.

My name is Jamie Roberts, and I have been designated by the United States Forest Service as the Hearing Officer for this proceeding. I want to thank all of you for coming. The purpose of this hearing is to receive your views on the alternatives proposed for the project and how they may affect your subsistence use of the project area and to make an official record of your testimony. We appreciate your interest and effort to be here and want to assure you that we will do our part to listen and record your comments.

For the record, today is Wednesday Oct. 27, 2004 and the time is 7:00 PM. This Hearing is being held in Wrangell, Alaska at the Nolan Museum. This Hearing was immediately preceded by an Open House. Public notification of this Hearing was made by publication in the Wrangell Sentinel and the Ketchikan Newspaper.

There are some procedures I would like to mention. This Hearing is scheduled to run until 8:00 PM. However, we want to give everyone the opportunity to testify, so, if testimony runs beyond that time, we will continue until everyone that wishes to speak has had the opportunity to do so. If testimony is completed earlier, we will keep the record open until 8:00 PM to allow opportunity for additional comments. If you have not already done so, please sign in at the door and indicate if you wish to present testimony. When you do come up for testimony, please state your name and spell it for the record. This along with your address or phone number on the sign in sheet will allow us to contact you if we need to clarify something in your testimony as we develop the decision for the project.

With that introduction, I am now opening the Hearing and we are ready for the first testimony.

If no others wish to give testimony at this time, it is now 8:00 PM, and I am closing the Hearing.

Appendix D

Response to Comments

Appendix A

Reference to Documents

No.	Description	Page
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Appendix D

Response to Comments

Introduction

Appendix D includes responses to comments received for the Emerald Bay Draft Supplemental Environmental Impact Statement (Draft SEIS).

Analysis and Incorporation of Public Comment

Fifty-one agencies, organizations, and individuals submitted written comments on the Emerald Bay Draft SEIS. These comments are included in this appendix. In addition, a national environmental organization submitted e-mail comments from approximately 40,474 individuals signing a form letter, posted on the organization's website, requesting "no action".

Many comments ask for clarification or additional information to be presented in the Final SEIS. Some comments may present additional information not previously considered, or request modification to an alternative, or a new alternative altogether. Some comments disagreed with direction in the Forest Plan, which makes them beyond the scope of this document. Other comments can be addressed through Forest Plan direction. Some comments involve issues beyond the analysis area or speculation that does not involve reasonably foreseeable future projects, and thus are also beyond the scope.

Some comments expressed concern about roadbuilding and timber harvest in Cleveland Roadless Area #528. They thought the roadless nature of the Cleveland Peninsula should be retained. Others were concerned that a precedent would be set by proposing to build a road through a medium Old-growth Reserve. They cited the possibility for degrading effects to fish and wildlife resources and wondered what allowances would be made. Others questioned the use of agency models and policies.

Some comments expressed concern over the economic viability of proposing uneven-aged management prescriptions in an isolated Timber Production LUD. They also questioned whether these prescriptions would meet the objectives of the LUD and the Purpose and Need for the project. These comments are the timber economics issue discussed in Chapter 2.

The Interdisciplinary Team (IDT) thoroughly and objectively read and analyzed every substantive issue or concern. Individual comments/issues within each letter, and the corresponding Forest Service response, are numbered to facilitate analysis and response. Identical or substantially similar form letters, or similar topics are grouped and provided with a single response to the topics raised.

Letters Received from Individuals, Organizations, and Agencies

The following list includes all individuals, organizations, and agencies that the Forest Service received substantive comments from during the 45-day comment period following the publication of the Emerald Bay Draft Supplemental Environmental Impact Statement. This document includes the Forest Service response to the issues addressed in the public comment.

Comment letters have been annotated on the right hand margin with a vertical line with an associated comment acronym and a number. Responses to these comments are identified with a corresponding acronym/number in the Forest Service Response section (see "Response Page" in table below) following the letter. For example, response "NOAA-1" would respond to the first issue identified in the National Ocean and Atmospheric Administrations letter.

Appendix D

Name	Organization	City	State	Letter Page	Response Page
Susan Kennedy	U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration	Silver Spring	MD	D-3	D-6
Pamela Bergmann	U.S. Dept. of Interior, Office of the Secretary	Anchorage	AK	D-7	D-11
Robert Adams		Ketchikan	AK	D-13	D-37
Charlie Allen		Ketchikan	AK	D-14	D-37
Jeff Angerman		Wrangell	AK	D-15	D-37
Ida Barnack		Juneau	AK	D-16	D-37
Barry Christensen		Ketchikan	AK	D-17	D-37
James V. Drew		Fairbanks	AK	D-18	D-37
Robert B. Elliot		Ward Cove	AK	D-19	D-37
Ron Flint		Juneau	AK	D-20	D-37
William S. Haag		Kodiak	AK	D-21	D-37
Bill Hendricks		Ketchikan	AK	D-22	D-37
John Johnson		Petersburg	AK	D-23	D-37
Randy Johnson		Ketchikan	AK	D-24	D-37
Scott C Milner		Ketchikan	AK	D-25	D-37
Keith R. Perkins		Sitka	AK	D-26	D-37
Linda K Randall		Ketchikan	AK	D-27	D-37
Trevor Sande		Ward Cove	AK	D-28	D-37
Walter W. Shuham		Ketchikan	AK	D-29	D-37
Kay Sims		Ketchikan	AK	D-30	D-37
Mike Svenson		Sitka	AK	D-31	D-37
Cynthia Toohey		Anchorage	AK	D-32	D-37
Ed Zastrow		Ketchikan	AK	D-33	D-37
Rondo and Janet Ludwig		Friday Harbor	WA	D-34	D-37
Eric Muench		Ketchikan	AK	D-35	D-37
Kathy Arntzen		Ketchikan	AK	D-36	D-37
Evening S.H. Grutter		Sitka	AK	D-38	D-39
Jacquelyne and Robert Hunley		Meyers Chuck	AK	D-40	D-43
Jill Jacob		Ward Cove	AK	D-44	D-45
Linn D. Barrett		Greeley	CO	D-46	D-64
Adrian Bellomo		Palo Alto	CA	D-47	D-64
J. Capozzelli		New York	NY	D-48	D-64
Jacob Golding		Lincolnshire	IL	D-49	D-64
Aisha Hopkins		Gig Harbor	WA	D-50	D-64
Melissa Horn		Williams	AZ	D-51	D-64
Rachel M. Moses		Bar Harbor	ME	D-52	D-64
A. Alpert/S. Adams		Harvard	MA	D-53	D-64
Diana Oleskevich	Sisters of St. Joseph of Carondelet	St. Louis	MO	D-54	D-64
Robert Coon		Chicago	IL	D-55	D-64
Dr. M.R. MacPherson		Santa Fe	NM	D-56	D-64
Patricia Saunders		Seattle	WA	D-57	D-64
Jane Shofer		Seattle	WA	D-58	D-64
Kevin Carroll		Chicago	IL	D-59	D-64
Nancy Robinson		Corvallis	OR	D-60	D-64

Name	Organization	City	State	Letter Page	Response Page
Bryon Rot		Port Townsend	WA	D-61	D-64
Sister Beryl Stone		St. Lambert	CN	D-62	D-64
Marcia D. Weber		Painted Post	NY	D-63	D-64
Gabriel Scott	Cascadia Wildlands Project	Cordova	AK	D-65	D-84
Amy Mall	Natural Resources Defense Council	Washington	DC	D-95	D-96
Mark Rorick, Josie Garton, Corrie Bosman, Buck Lindekugel, Larry Edwards, Neil Lawrence, Mike Sallee	The Sierra Club, Sitka Conservation Society, SE Alaska Conservation Council, Greenpeace, US, Natural Resources Defense Council, Tongass Conservation Society	Various locations		D-97	D-153
Christine Reichott	U.S. Environmental Protection Agency	Seattle	WA	D-162	D-164



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

Joim Natvig
USDA Forest Service; TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig:

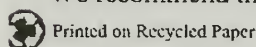
The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) has reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the Emerald Bay Timber Sale. The Forest Service's preferred alternative would harvest approximately 32,749 CCF of timber from approximately 601 acres of National Forest System land in a single timber sale.

Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with NMFS on all actions that may adversely affect EFH. NMFS is required to make conservation recommendations, which may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects. For the purposes of this project, EFH includes all segments of streams where salmon reside during any life stage or period of the year, and the marine waters and substrates of Emerald Bay. The streams in the project area provide important habitat for pink, chum, and coho salmon. The marine waters and substrates of Emerald Bay provide important habitat for a number of species including Pacific cod, arrowtooth flounder, Pacific ocean perch, walleye pollock, dusky rockfish, shortraker and rougheye rockfish, yelloweye rockfish, rock sole, sculpin, skate, and spiny scallop. Chinook salmon are present in the marine waters adjacent to the project site, but do not spawn in the streams in the project area.

The SDEIS has several inconsistencies that make it difficult to assess how the proposed action may affect EFH. For example, the Proposed Action section of the Executive Summary (page S-1) states: "The Forest Service proposes to harvest approximately 24,359 CCF of timber from approximately 620 acres of National Forest System land through one timber sale." "Logs would be helicopter yarded from the cutting units to a barge in Emerald Bay." "No road or log transfer facilities would be constructed."

These descriptions correspond to Alternative C (Table S-1 and Table 2-5). The last page of the Executive Summary states that the preferred alternative for the SDEIS is Alternative B, and page S-4 of the SDEIS describes Alternative B as having "6.2 miles of road construction and conventional harvest" and further states "Alternatives B and D reduce helicopter yarding distance through road construction and Alternative B proposes conventional yarding methods (shovel and cable)." Page 1-2 of the main document also states "The preferred alternative, Alternative B... would require 6.2 miles of new road construction and a log transfer facility." If Alternative B is the preferred alternative, the description of the proposed action should correspond to the description of Alternative B.

Also, page 1-2 in the Proposed Action section of Chapter 1, Purpose and Need, states that the Forest Service plans to harvest approximately 24,359 CCF of timber from approximately 620 acres of land, whereas the preferred alternative apparently involves 32,749 CCF and 601 acres. Again, the description of the proposed action should correspond to the description of the preferred alternative. We recommend that you clarify these inconsistencies.



NOAA-1

The text has some inconsistencies regarding the use of log-stringer bridges and culverts to cross streams/drainages. The description of the alternative design in Chapter 2 on pages 2-1 and 2-2 states “Log-stringer bridges would be used to cross drainages, and culverts would only be used for crossdrain areas.” Do drainages include Class I, II, III, and IV streams or just Class I and Class II streams? Are “crossdrain areas” culverts that will transport water running along ditch lines under the road through a culvert, or are Class III or Class IV streams included? Clear definitions and consistent use of terminology would be helpful. For example, page 2-16 states “Road construction includes log-stringer bridges for all crossings of Class I or II streams.” Page 3-16 states: “All crossings would be log-stringer bridges which would be removed at the end of the sale.” Page 3-17 states: “All required crossings would utilize log-stringer bridges.” Table Fisheries-2, titled Emerald Bay Stream Crossings by Alternative, does not define crossings nor break out crossings by stream class or by anadromous, resident, or water quality streams. Such clarification would be useful. Also, for any of the alternatives, NMFS supports the use of log-stringer bridges and closure of the road with restoration of stream crossings after timber management operations are completed.

NOAA-2

The text does not clearly state how culverts will be handled in terms of road closure. The description of the alternative design in Chapter 2 on page 2-2 states: “Roads in Alternatives B and D would be closed to motorized vehicles when harvest operations are complete.” “Closure would include log-stringer bridge removal and storm proofing (water bar construction).” The description of closure does not specifically mention removing the culverts, and should clearly state that the culverts will be removed, if that is your plan.

NOAA-3

On page 3-22, the latitude of the proposed LTF is given as 55.15.02N and the longitude as 132.13.46W, placing the LTF near Sunny Point in Cholmondeley Sound approximately 40 miles from Emerald Bay. NMFS assumes that the actual location of the proposed LTF is the same as shown on the map accompanying the 2001 Record of Decision (ROD) for the Emerald Bay Timber Sale. The Forest Service should provide NMFS with a precise location for the proposed LTF. We note that references to a breakwater associated with the LTF have been removed from the SDEIS and assume that this is in keeping with the information NMFS received during review of the 2001 FEIS and ROD that a breakwater will not be required for this facility. The final supplemental EIS should clarify this point.

NOAA-4

The discussion of the environmental consequences of the LTF (pages 3-24 and 3-25) lists four ways that the Alaska Timber Task Force Siting Guidelines attempt to mitigate the potential effects of bark dispersal and toxicity. Page 3-25 states: “Both the helicopter-to-barge LTF proposed for Alternative C and the land-to-barge design proposed for Alternatives B and C would meet the siting guidelines outlined above.” The land-to-barge design is proposed for Alternatives B and D, not Alternative C.

NOAA-5

The United States Fish and Wildlife Service (USFWS) conducted a field investigation at the site of the proposed Emerald Bay LTF in 2000. Its field investigation report, dated June 8, 2000, states: “The proposed Emerald Bay LTF location we investigated does not meet the 1985 Alaska Timber Task Force LTF siting guidelines.” “Specifically, the following siting guidelines will not be met with this project as proposed:”

NOAA-6

- 1) “Bark dispersal – LTFs should be sited along or adjacent to straits, channels, or deep bays where currents may be strong enough to disperse wood debris. The proposed Emerald Bay LTF

site is relatively shallow and little current was detected along the underwater transects. These factors, in combination, may inhibit bark dispersal.”

- 2) “Site productivity – LTFs should be located in the least productive intertidal and subtidal zones. The proposed Emerald Bay LTF site supports a plant community and animal component that is typical, with a high diversity of species (over four dozen species). The California sea cucumber (*Parastichopus californicus*), a commercially important species, was the most abundant animal observed, and because it was observed in a number of sizes, this suggests that the Emerald Bay site may be a cucumber nursery area. The proposed LTF will likely degrade or possibly eliminate habitat for this and other species observed.”
- 3) “Avoid bald eagle nest trees – LTFs should be sited to avoid bald eagle trees.” ...

NOAA-6,
cont.

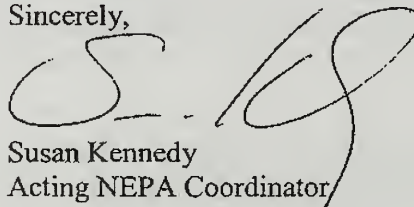
NMFS recommends including the results of the 1982, 1998, and 1999 reconnaissance surveys on the proposed LTF site in the EFH Assessment, as well as pertinent information from the USFWS report.

NOAA-7

NMFS concurs with the finding that this project may adversely affect EFH. Implementation of the proposed standards and guidelines from the Tongass Forest Plan and applicable best management practices (BMPs) will minimize this impact on anadromous streams. The proposed land-to-barge LTF and inclusion of provisions in the LTF management contract to reduce bark accumulation would reduce impacts to EFH that would occur from a land-to-water LTF. Although NMFS generally concurs with the Forest Service’s conclusion that the potential adverse effects of the project have been minimized to the extent practicable, the lack of a precise location for the LTF, incomplete information in the LTF analysis, and incomplete information on stream crossings and road closure precludes us from providing site-specific EFH recommendations at this time.

Please contact Katharine Miller at (907) 586-7643 or Cindy Hartmann at (907) 586-7585 if you have any questions.

Sincerely,



Susan Kennedy
Acting NEPA Coordinator

cc: USFWS, ADEC, ADNR, EPA, Juneau
ADF&G, Janet Schempf
USDA FS, Don Dunlap, Juneau
USDA FS, Dick Aho, Petersburg

References:

U. S. Fish and Wildlife Service Juneau Field Office (2000). “Report of Field Investigation for the Proposed Emerald Bay Log Transfer Facility on the Cleveland Peninsula near Meyer’s Chuck, Alaska.” Juneau, AK. 12 pp.

Forest Service Response to Susan Kennedy, USDOC NOAA:**NOAA-1:**

This has been clarified in the Final SEIS.

Alternative C, the Proposed Action (Chapter 1), was developed in 1998 prior to scoping and is discussed in Chapter 2, "Alternatives Considered in Detail". Due to changing conditions since then, the Preferred Alternative for the project is now Alternative B. The Proposed Action does not have to remain the Preferred Alternative. The Preferred Alternative is identified after analysis has occurred. (40 CFR 1502.14(e)). Discussion of the Preferred Alternative, Alternative B, can be found in Chapter 2, "Alternatives Considered in Detail". All alternatives would implement Forest Plan Standards and Guidelines to minimize effects to Essential Fish Habitat, as described in the Fisheries section of Chapter 3 of the Final SEIS under "Essential Fish Habitat".

NOAA-2:

This discrepancy has been corrected in the Final SEIS. Log-stringer bridges would be used to cross all Class I, II, and III streams. Crossings for Class IV streams and other cross drainage would not require the purchaser to use log-stringer bridges.

NOAA-3:

The "Transportation" and "Marine" sections discuss the activities involved when timber harvest has been completed. All culverts would be removed upon completion of harvest operations. Chapter 2 has been updated to clarify this also.

NOAA-4:

The location of the LTF has been updated in the Final SEIS. These four practices have been met to the extent feasible. The helicopter-to-barge log transfer method would be permitted directly through the State and timber purchaser once a location has been identified.

NOAA-5:

The error has been corrected in the Final SEIS.

NOAA-6:

The "Marine" section of Chapter 3 discusses the rationale for selection of LTF sites. Additional information about the LTF locations is in the Emerald Bay LTF Reconnaissance Report in the project file. On June 8, 2000, an interagency team comprised of USFWS, ADF&G, and USFS personnel evaluated 2 miles of shoreline near Emerald Bay. Six potential sites were evaluated and the best overall site was selected. Site selection was based on the presence of steep uplands limiting access to LTF locations, bathymetry (water either too steep or too shallow, presence of reefs), anticipated LTF cost, and the Alaska Siting Guidelines. The interagency team identified the proposed LTF site as the best potential site within the 2 miles that were analyzed.

NOAA-7:

Results from the 2000 Fish and Wildlife Service dive survey are summarized in the Fisheries Resources section of the Final SEIS Chapter 3. The "1982 survey" referred to is the "LTF and Campsites, Cleveland Peninsula" survey that was done in March 1981 by Forest Service engineering and USFWS biologist personnel, and is in the planning record. It assessed several potential sites, including the Emerald Bay site. The 1998 and 1999 information has been incorporated into this analysis. See the "Marine Environment" section of Chapter 3. The 2000 USFWS dive survey provided a thorough assessment of the prospective area for an LTF at this time, and is included in the Emerald Bay project planning record.



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1689 C Street, Room 119
Anchorage, Alaska 99501-5126



ER 04/756

November 29, 2004

John Natvig
USDA Forest Service
TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig:

The Department of the Interior (DOI) has reviewed the U.S. Forest Service (USFS) September 2004 Draft Supplemental Environmental Impact Statement (SEIS) for the proposed Emerald Bay Timber Sale. This letter only addresses the new SEIS. We believe that the following comments need to be addressed in the Final SEIS.

The Emerald Bay Timber Sale is proposed on the Cleveland Peninsula, near Meyer's Chuck, Wrangell, and Ketchikan, Alaska. USFS proposes harvesting 12.2 million board feet of timber from approximately 601 acres and constructing 6.2 miles of road and a new Log Transfer Facility (LTF) within the Cleveland Roadless Area (#528).

Our recommendations are made pursuant to authorities under the National Environmental Policy Act and the Fish and Wildlife Coordination Act. The latter requires consultation with the U.S. Fish and Wildlife Service (USFWS) when any body of water is proposed for modification by any agency under a Federal permit. The LTF proposed for the Emerald Bay Timber Sale will require a Section 10/404- permit under the Clean Water Act from the U.S. Army Corps of Engineers. Our jurisdiction for commenting in such matters includes any wildlife resources at risk from the proposed project.

Standards and Guidelines and Management Prescriptions

In 1997, the Tongass Land Management Plan (TLMP) established a forest-wide system of Old Growth Reserves (OGRs) and a series of Standards and Guidelines (S&Gs) to mitigate the impacts of roads and logging on fish and wildlife. DOI and USFWS were involved in that TLMP revision process, and continue to work with USFS on TLMP implementation.

The OGRs and S&Gs were designed to provide refugia for old growth dependent species, and provide corridors for their movement between habitats. S&Gs represent minimum achievement levels (TLMP, page 1-2). We believe the Emerald Bay project does not meet these thresholds.

USDI-1

Beach and Estuary Fringe S&G - TLMP specifies 1,000-foot buffers for both beach and estuary fringe to protect important habitat. These forest margins are classified as unsuitable for timber harvest and road construction is discouraged. Both buffer types would be affected by road construction and associated timber harvesting under the project as proposed. This intrusion would likely eliminate valuable nesting habitat for migratory birds, winter habitat for deer (an important subsistence species), and den sites for a variety of small mammals.

TLMP also specifies that intertidal and subtidal fill is to be avoided, and if an LTF is required, the Alaska Timber Task Force Siting Guidelines are to be used (TLMP page 4-4, 4-5). However, fill is proposed in the intertidal and subtidal zones to construct an LTF at a site that does not meet the Alaska Timber Task Force Siting Guidelines (SEIS 3-9, 3-23). We believe that eliminating the fill for the LTF would reduce intertidal and subtidal zone impacts (e.g. by transfer of timber to anchored barges via helicopter). We recommend that the Final SEIS explain the divergence of proposed project actions from the established S&Gs and analyze the resulting impacts.

USDI-2

Wildlife S&G - TLMP requires management of bald eagle habitat in accordance with the Interagency Agreement established with the USFWS, that excludes all land use activities within a 330-foot habitat management zone around all bald eagle nests (Wildlife S&G; TLMP pg 4-113). USFS proposes constructing and operating an LTF within a bald eagle nest buffer zone in the Emerald Bay project area (SEIS 3-85). We believe other alternatives evaluated in the SEIS provide an increased level of protection for eagle nests in the project area. We recommend that the Final SEIS explain the divergence of proposed project actions from the established S&Gs and analyze the resulting impacts.

USDI-3

Old Growth Habitat Management Prescriptions - TLMP states road construction is generally not consistent with the OGR land use designation objectives (TLMP 3-81). USFS proposes bisecting a medium OGR with a 2.2-mile road, and has designed two rock pits within the OGR in the Emerald Bay project area (SEIS 2-6, 3-9, 3-11). These developments will remove OGR habitat for many years, and are likely to contribute to secondary effects of human disturbance and stream sedimentation. We believe these impacts could be avoided by harvesting timber without roads. We recommend that the Final SEIS explain the divergence of proposed project actions from the established S&Gs and analyze the resulting impacts.

USDI-4

Timber Production Management Prescriptions - TLMP directs managers to reduce clearcutting when other cutting methods will meet land management objectives (TLMP 3-144). The Emerald Bay project proposes to increase the amount of clearcutting for this project area compared with previous alternatives by proposing greater than 70 percent of timber harvest using clearcut prescriptions (SEIS Abstract, 3-10). Partial harvests are likely to have lower impacts on several species of wildlife, as standing trees and snags in partially-harvested areas provide some habitat features used by various species. Loss of the closed canopy characteristic of mature forests, however, dramatically reduces snow-interception, so partial harvests do adversely impact the value of treated stands as winter cover for species, such as deer, that rely on a closed canopy (Wallmo and Schoen 1980, Shoen, et.al 1988, Kirchhoff and Thomson 1998). We believe that impacts may be reduced if mature forest cover was retained in deer winter ranges and migration corridors. We recommend that the Final SEIS explain the divergence of proposed project actions from the established S&Gs and analyze the resulting impacts.

USDI-5

The Purpose and Need statement for the project (SEIS 1-1, 1-6) identifies no specific timber volume goal, so conversion of proposed clearcuts to partial cuts (without increasing the acreage) would allow timber harvest in compliance with TLMP Timber Production Management Prescription and the Purpose and Need for the project while reducing impacts to structure-dependent species. We recommend such a partial-cut alternative be evaluated in the Final SEIS.

USDI-6

Synergistic Effects of Multiple S&Gs – Project-level contributions to the Forest-wide conservation strategy, (including OGRs, the beach and estuary fringe, and species-specific habitats) (SEIS 3-6) should be considered for individual projects such as Emerald Bay. USFS concludes that the current system of OGRs and the use of S&Gs would ensure that habitat connectivity will be maintained for old-growth associated species (SEIS 3-11).

USDI-7

The proposed action, however, deviates from several relevant S&Gs, as discussed above. We believe that the cumulative effects of these deviations will be problematic for old-growth associated species within the Emerald Bay project area specifically, and the Cleveland Roadless Area generally. We recommend the Final SEIS provide an analysis of combined effects of these S&G deviations. We further recommend that the USFS adopt an alternative that implements the S&G's and maintains the current system of OGRs.

Proposed Emerald Bay Log Transfer Facility

Initial reconnaissance of the proposed LTF for Emerald Bay was completed in 1982, with additional reconnaissance in 1998 and 1999 to ensure that the potential LTF site met Alaska Timber Task Force Siting guidelines. The site was again reviewed in 2000 as a part of a joint field trip with USFS, the Alaska Department of Fish and Game, and USFWS (SEIS 3-23).

The report documenting the joint investigation (USFWS 2000) recommended that an LTF not be built at this site, as the proposed site does not meet several criteria of the Alaska Timber Task Force Siting Guidelines (ATTF 1985). The report raised specific concerns about potential impacts to California sea cucumbers, old growth habitat, and bald eagle nests and appears to contradict the SEIS conclusion that there will be no adverse effects as a result of constructing the proposed LTF. We believe that this report should be cited, and its findings and recommendations addressed in the Final SEIS.

USDI-8

Sitka Black-tailed Deer

Sitka black-tailed deer are an important subsistence species and are primary prey for the Alexander Archipelago wolf. The SEIS indicates that predation was not included as a factor when running the Forest's deer model to determine deer habitat capability estimates for the Emerald Bay project. However, wolves are present on the Cleveland Peninsula, along with other deer predators such as brown and black bears and mountain lions.

USDI-9

We believe the predation factor must be applied to this project area to reflect actual conditions. Such analysis will likely result in different deer habitat capability figures. We recommend incorporation of predation into the deer model and that the results be reanalyzed in the Final SEIS.

Cumulative Effects upon the Cleveland Roadless Area

USFS prepared this SEIS to evaluate potential effects of project alternatives on roadless area values and wilderness characteristics (SEIS S-1). The analysis in the SEIS, however, maintains a narrow focus on the Emerald Bay project area within the Cleveland Roadless Area, and compares impacts of the Emerald Bay project as a small percent of the whole, which, we believe, does not reflect the full scope of impacts to fish, wildlife, and plant resources.

Roads can reduce the value of adjacent habitat, as many species avoid them. Human access and disturbance can displace nesting birds, such as waterfowl and raptors, and populations of amphibians have been found to avoid roads and forest areas adjacent to roads (Gibbs 1998). This avoidance may be because of disturbance or a result of a change in microclimate next to new forest openings. Concannon (1995) found forest edge effects up to 200 meters (660 feet) from newly created openings in the forests of southeast Alaska. We recommend that both direct and secondary impacts associated with road construction and use be analyzed in the Final SEIS.

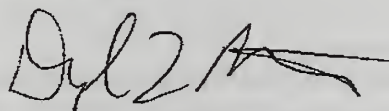
USDI-10

The SEIS briefly describes three projects on the Cleveland Peninsula as reasonably foreseeable future actions (SEIS 3-2). Their effects are not considered because they do not fall within the Emerald Bay drainage, or within the Emerald Bay project area (SEIS 3-3). However, the SEIS states that the Emerald Bay Roads Analysis map shows a projected road system from south of Port Stewart and west to south of Vixen Inlet (SEIS 3-13), covering each of the major drainages of the Cleveland Roadless Area. The SEIS does not present any cumulative effects analysis of this road system and ensuing proposed projects. We recommend the Final SEIS include a complete analysis of the cumulative environmental effects of the Emerald Bay, Port Stewart, and other potential projects that will alter the character of the Cleveland Roadless Area and the fish and wildlife values it provides.

USDI-11

Thank you for the opportunity to comment on this document. If you have any questions about these comments, please contact Bruce Halstead, USFWS Juneau Office, at 907-586-7240.

Sincerely,



for

Pamela Bergmann
Regional Environmental Officer - Alaska

Appendix D

Forest Service Response to Pamela Bergmann, USDI:

USDI-1:

The “Biodiversity” section includes a description of the OGRs and the amount that the OGRs exceed both total acres and Productive Old-growth acres. During several meetings with USFWS and ADF&G, the design of the OGRs was discussed and evaluated. Several alternative designs were proposed. Information on why these designs were not included is in Chapter 2 of the Final SEIS – Alternatives Eliminated from Detailed Analysis. The “Wildlife” section under cumulative effects discusses wildlife habitat movement needs by species. More information is located in the report in the project record.

USDI-2:

The LTF is compliant with Forest Plan Standards and Guidelines (Forest Plan 4-4,5), to the extent reasonable and feasible. This location represents the best potential site along 2 miles of coastline for minimizing impacts. The Alaska Timber Task Force (ATTF) siting guidelines were used in selection of the most practicable location along this stretch of coastline. The range of alternatives evaluated an option that would place no fill in the inter-tidal zone (Alternative C). Other alternatives considered the use of a barge LTF, which would reduce impacts due to bark from the inter-tidal zone. In addition to these measures, the LTF site is located more than 300 feet away from the mouth of the inter-tidal area of the Class I stream, Emerald Creek. The land-to-barge design proposed for Alternatives B and D would meet the siting guidelines. The environmental consequences of the LTF, road, rock pits, camp and sortyard are discussed in the “Transportation” and “Marine” sections in Chapter 3. See the response to NOAA-6.

USDI-3:

The “Wildlife” section of Chapter 3 explains the effects of the action alternatives on bald eagles. Alternatives B and D would construct a road and LTF in a bald eagle nest buffer zone; blasting and repeated helicopter flights would occur within ½ and ¼ mile of nests, respectively. Alternative locations were considered for the LTF but were not feasible (USDI-2). Repeated helicopter flights could occur within ¼ mile of nests under Alternative C, although options may exist for anchoring barges away from this area. Because disturbance would occur under action alternatives, a variance has been requested in accordance with the Bald Eagle MOU. Results and mitigation will be included in the Record of Decision.

USDI-4:

Forest Plan Standards and Guidelines for Old-growth Habitat (Forest Plan 3-81) states “new road construction is generally inconsistent with Old-growth Habitat Land Use Designation objectives, but new roads may be constructed if no feasible alternative is available”. Alternative C provides an alternative method of harvest without effects of a road and facilities located in the medium OGR. Additional analysis was completed between the Draft and Final SEIS, looking for any feasible transportation routes that would avoid the OGR. None were identified, as is further explained in Chapter 2 (Alternatives Eliminated from Detailed Study) and Chapter 3 (Transportation section) of the Final SEIS. See comment response USDI-1 above

USDI-5:

The Proposed Action, Alternative C, does not include the clearcut harvest method, nor does Alternative D; only Alternative B includes the clearcut harvest method. As described in the “Biodiversity” section of Chapter 3, Alternative B would clearcut 396 acres and use single-tree selection on 205 acres. In addition, “the proposed clearcut harvest would differ somewhat from traditional clearcutting because 10-20 percent of the original stand structure of each unit that contains high-value marten habitat would be retained.” This range of alternatives provides the decision maker with a variety of harvest treatments. The effects of clearcutting (in Alternative B) can be found by specific resource areas such as wildlife, silviculture and soils and geology. Documentation of the need for clearcutting is found in the “Silviculture” section of Chapter 3, and the stand prescription folders (project file). See the “Wildlife” section of Chapter 3 and USDI-1 in response to deer habitat needs and effects.

USDI-6:

Alternative B is the only alternative that includes clearcut harvest. Single-tree and group selection has been proposed for those acres that require helicopter logging. Alternatives C and D include only single-tree and group selection. Alternatives C and D would meet your request for evaluating partial harvest in the same units as those being clearcut. One of the objectives of the Timber Production LUD is to reduce costs of the timber program. Clearcut harvest is generally less expensive than partial harvest.

USDI-7:

The Proposed Action and the alternatives all meet the Forest Plan Standards and Guidelines. The “Biodiversity” section of Chapter 3 discusses the effects by alternative to the Old-growth Habitat strategy. Connectivity of old-growth habitats was

considered in this analysis. Forest Plan management prescriptions for old-growth habitat include the objective “To the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives”. The “Transportation” section of Chapter 3 describes the potential alternative routes considered for access to the harvest units in the project area. It explains the various measures used to determine the feasibility of alternate routes than the route to Emerald Bay. Cumulative effects discussions have been expanded in the Final SEIS, Chapter 3, especially related to the impacts to the OGR.

The Forest Plan FEIS, including Appendix N, and the Forest Plan Record of Decision (pg. 39) concluded that the old-growth conservation strategy provided a high level of confidence that even with the maximum allowable timber harvest, the Plan would provide for viable populations of species. The amount of timber harvested during the first 5 years under the new Plan is less than half the maximum rate modeled in the Forest Plan (5-year Review). However, preliminary work in support of the conservation strategy review has begun, and the Tongass will be conducting this review with interagency partners and the research branch of the Forest Service in 2005.

Viability is a Forest-wide issue. The Forest Plan has been found to be adequate in regard to viability (Forest Plan FEIS, Appendix N). Under 40 CFR 1502.20, we may tier a project level analysis to a broad program-level environmental impact statement, such as the Forest Plan FEIS. Maintenance of the current system of OGRs has been included in the design of the alternatives.

USDI-8:

See the responses to comment USDI-1, 2. The USFWS 2000 report has been referenced and has been considered in this analysis and is part of the planning record. The EIS has disclosed the effects to bald eagles, old-growth habitat, and California sea cucumbers as well as other issues brought up in the 2000 report. Those discussions of effects can be found in the “Wildlife”, “Biodiversity”, and “Marine” sections of Chapter 3.

USDI-9:

The “Wildlife” section in Chapter 3 discloses how the deer model was run, and the interpretation of those results by alternative. The deer model was run according to current direction for deer habitat capability and deer density for wolves (2000 Monitoring Report, Cole 2005). These parameters were correctly run without predation since the effects of predation are included in the 18 deer/mi² factor. Including predation for these calculations would result in double-counting effects (Forest Plan FEIS 3-404 & 405). However, predation should have been included when calculating deer available to humans in the Draft SEIS (Subsistence section - hunter demand). Hunter demand has been corrected for the Final SEIS by including the 36 percent predation factor.

USDI-10:

The direct and indirect effects of road construction on wildlife and habitat are discussed in the “Wildlife” and “Fisheries” sections of Chapter 3. For more discussion on edge effects of roads, see “Biodiversity” section of Chapter 3 and response to CWP-15. The cost of road maintenance was considered in Alternatives B and D. During harvest operations, road maintenance would be the responsibility of the timber purchaser. After harvest and clean-up operations are complete, the roads would be placed in storage, and no maintenance would be needed. This would allow maintenance dollars to be spent on roads that are actively being used elsewhere.

USDI-11:

The rationale for not assessing the effects of this road system was disclosed on page 3-13 of the Draft SEIS. As stated, the location of this potential road system is not considered reasonably foreseeable since there is not a proposal at this time. Because only preliminary planning at a broad scale has occurred, there is not a reasonable way to estimate effects without speculating about future planning efforts. When a project-specific planning effort begins that includes all or part of this potential road system, then the cumulative effects of that project will include any cumulative impacts from the Emerald Bay project. The roads analysis process produces a programmatic document that may assist decision makers for current projects. The road in question here is not part of the Emerald Bay EIS decision and would be considered under some future NEPA analysis.

Mail or Fax by Monday, November 15, 2004
Emerald Bay Timber Sale DSEIS

URGENT ACTION REQUIRED

The Forest Service needs to hear from you on the Emerald Bay Timber Sale Draft Supplemental Environmental Impact Statement. It is very important that you send comments.

The Emerald Bay Timber Sale is located on the Cleveland Peninsula near Ketchikan. The Forest Service preferred Alternative is Alternative B. This alternative proposes to harvest approximately 16 million board feet of timber from 601 acres. Helicopter logging will be used on 218 acres. 6.2 miles of new roads will be closed to motorized use following the sale. The logs will be barged from the sale. The sale would provide for 86 jobs. The sale is needed to supply timber to our local mills.

Your comments on the Emerald Bay Timber Sale DSEIS are critical to ensuring local input into the finalization of the sale and management of the Tongass National Forest.

Please provide your comments by using this comment form or sending your own letter. Your personal comments are the most valuable.

Thank you.

Mailing address: John Natvig, USDA – Forest Service TEAMS Enterprise, Attn: Emerald Bay, PO Box 241, Fort Meade SD 57741. Fax: (605) 720-7712

RE: Emerald Bay Timber Sale Draft Supplemental Environmental Impact Statement.

1. I support the Forest Service preferred Alternative B for the Emerald Bay Timber Sale DSEIS
☒ AGREE ☐ DISAGREE ☐ NO OPINION
2. The timber sale is needed to support our local mills and economy. The sale will provide active forest management to the area. The harvested areas will provide a better diversity of habitat for the wildlife in the area.
☒ AGREE ☐ DISAGREE ☐ NO OPINION
3. The final timber sale must be economically viable for the potential purchasers.
☒ AGREE ☐ DISAGREE ☐ NO OPINION

Your personal comments here will make this document more valuable. Use additional pages if needed.

To validate your comments please fill in completely and be sure to sign.

Signature: Robert Adams Name: ROBERT ADAMS
 Address: 3304 So Tedcins Hwy Town: KETCHIKAN State: AK
 Zip: 99901

OCT-19-2004 01:56 AM CHARLIE.TYLER.RENTAL

907 225 7126

P. 01/01

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*The Sawmills we have left in Southeast Alaska
Need the timber from the Sale. We continue
to loose good paying jobs because of the
lack of timber sales available*

To validate your comments please fill in completely and be sure to sign.

Signature: Charlie Allen Name: Charlie Allen
 Address: 4170 Valleron Lane Town: Ketchikan State: AK
 Zip: 99901

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IT IS VITAL TO OUR REGION & COMMUNITY
THAT TIMBER SALES CONTINUE TO BE MADE
AVAILABLE TO THE REMAINING SAW MILLS IN
OUR AREA. THEY MUST BE FEASIBLE TO LOG
& PROVIDE THE MAXIMUM BOARD FEET & EMPLOYMENT
FOR EACH SALE.

To validate your comments please fill in completely and be sure to sign.

Signature: Jeff Augerman Name: JEFF AUGERMAN
 Address: PO BOX 1771 Town: WRANGELL State: AK
 Zip: 99925

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To validate your comments please fill in completely and be sure to sign.

Signature: Ida Barnack Name: Ida Barnack
 Address: 8292 Garnet St Town: Juneau State: AK
 Zip: 99801

Mailing address: John Natvig, USDA – Forest Service TEAMS Enterprise, Attn: Emerald Bay, PO Box 241, Fort Meade SD 57741. Fax: (605) 720-7712

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This small timber sale is vital to our areas economy and will not significantly impact the Cleveland Peninsula. Please allow local input to insure this sale moves forward. Thank You.

Barry Christensen, Pharmacist

To validate your comments please fill in completely and be sure to sign.

Signature: Barry Christensen Name: Barry Christensen
 Address: 3469 Bailey Blvd Town: Ketchikan State: AK
 Zip: 99901 Fax: 907-225-6197

**Mail or Fax by Monday, November 15, 2004
Emerald Bay Timber Sale DSEIS**

URGENT ACTION REQUIRED

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Thank you.

Mailing address: John Natvig, USDA – Forest Service TEAMS Enterprise, Attn: Emerald Bay, PO Box 241, Fort Meade SD 57741. Fax: (605) 720-7712

RE: Emerald Bay Timber Sale Draft Supplemental Environmental Impact Statement.

1. I support the Forest Service preferred Alternative B for the Emerald Bay Timber Sale DSEIS

AGREE
DISAGREE
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AGREE
DISAGREE
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3. The final timber sale must be economically viable for the potential purchasers.

AGREE
DISAGREE
NO OPINION

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*THE EMERALD BAY TIMBER SALE IS MOST IMPORTANT IN
PROVIDING JOBS FOR LOCAL RESIDENTS. WITHOUT JOBS
SOCIETY CANNOT EXIST IN A MODERN WORLD*

To validate your comments please fill in completely and be sure to sign.

Signature: James V. Drew Name: JAMES V. DREW
 Address: 4725 VILLANOVA DR. Town: FAIRBANKS State: AK
 Zip: 99709

Mail or Fax by Monday, November 15, 2004 Emerald Bay Timber Sale DSEIS

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IN NO WAY SHOULD THE PUBLIC BE
DENIED ACCESS BY "CLOSEMENT" THE
ROAD SYSTEM AFTER THE PROJECT IS
COMPLETE.

To validate your comments please fill in completely and be sure to sign.

Signature: Robert B. Elliot Name: ROBERT B. ELLIOT
 Address: Box 699 Town: WARCOCK State: AK
 Zip: 99928

OCT-28-2004 11:34 FROM: NUGGET OUTFITTERS 9077893635

TO: 16057207712

P: 1/1

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It is vitally important to maintain an element of the forest manufacturing process in SE Alaska. There's a lot of land, trees, space, in SE Alaska that will allow this industry to operate.

To validate your comments please fill in completely and be sure to sign.

Signature: [Signature] Name: Don Flint
 Address: 12010 Cross St Town: Juneau State: AK
 Zip: 99801

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Emerald Bay Timber Sale DSEIS**

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AGREE
DISAGREE
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To date the FS has been incapable of maintaining a viable timber industry in Alaska. This sale is a step toward a diversified economy. The Tongass already has enough non-use areas. Please proceed with this sale and include as much conventional logging as possible to make the sale economic.

To validate your comments please fill in completely and be sure to sign.

Signature: [Signature] Name: William J. Haag
 Address: Box 1159 Town: Kodiak State: AK
 Zip: 99615

11-11-2004 5:37PM

FROM BILL HENDRICKS 907 247 3481

P. 1

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WE NEED TO GET THIS SALE, AND OTHERS, OUT OF THE NEARER BIDDING PROCESS AND INTO THE ECONOMY OF KETCHIKAN.

To validate your comments please fill in completely and be sure to sign.

Signature: Bill Hendricks

Name: Bill Hendricks

Address: 1425 Airport St

Town: Ketchikan

State: AK

Zip: 99901

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AGREE

DISAGREE

NO OPINION

all timber sales

3. The final timber sale must be economically viable for the potential purchasers.

AGREE

DISAGREE

NO OPINION

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An order to furnish the nation with lumber, a sustainable amount must be readily available. Lumber mills cannot work hit and miss with closures due to lack of wood. Both the USFS and the environmentalist are paid regularly for their work - right or wrong. Only the timber industry must lay off ~~the~~ workers and lay off etc workers. Lets reverse the process and see what happens.

To validate your comments please fill in completely and be sure to sign.

Signature: John Johnson

Name: John Johnson

Address: Box 1273

Town: Portersburg

State: AK

Zip: 99833

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I believe the USFS has done a good job addressing all concerns on this Sale.

To validate your comments please fill in completely and be sure to sign.

Signature: _____

Name: _____

Address: _____

Town: _____

State: _____

Zip: _____

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☒ AGREE DISAGREE NO OPINION

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My only concern about this is I do not agree with building Accessable infrastructure only to close it.

To validate your comments please fill in completely and be sure to sign.

Signature: Scott C. Milner CPA Name: Scott C. Milner CPA
 Address: P.O. Box 23085 Town: Ketchikan State: Alaska
 Zip: 99901

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DISAGREE

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AGREE

DISAGREE

NO OPINION

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AGREE

DISAGREE

NO OPINION

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Not in favor of the sale. The area is a beautiful forest and the sale will destroy it. The area is a beautiful forest and the sale will destroy it. The area is a beautiful forest and the sale will destroy it.

Myself and others who live in the area are not in favor of the sale. The area is a beautiful forest and the sale will destroy it. The area is a beautiful forest and the sale will destroy it. The area is a beautiful forest and the sale will destroy it.

To validate your comments please fill in completely and be sure to sign.

Signature: [Signature]

Name: John R. Natvig

Address: PO Box 241 Fort Meade SD 57741

Town: Fort Meade

State: SD

Zip: 57741

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*Let do lots of these small Timber Sale
and get the Tree crop healthy again.*

To validate your comments please fill in completely and be sure to sign.

Signature: *Linda K. Randall* Name: Linda K. Randall
 Address: 146 Forest Park Dr Town: Ketchikan State: Alaska
 Zip: 99901

OCT-19-2004(TUE) 09:20 R & M ENGINEERING-KETCHIKAN, INC. (FAX)907 225 3441

P. 001/001

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I LIVE ON THE NORTH END OF KETCHIKAN AT CLOVER PASS AND FREQUENTLY VISIT THE CLEVELAND FOR FISHING & HUNTING. THE PROPOSED ALTERNATIVE B IS COMPATIBLE WITH MY RECREATIONAL USE OF THE AREA. I FULLY SUPPORT LOGGING IN THIS AREA.

To validate your comments please fill in completely and be sure to sign.

Signature: Trevor Sande Name: TREVOR SANDE
 Address: PO Box 1465 Town: WARD COVE State: AK
 Zip: 99928

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USFS ALTERNATIVE B FITS WITHIN THE
PUBLIC'S BEST INTEREST AND SHOULD BE
PURSUED WITHOUT FURTHER DELAY

To validate your comments please fill in completely and be sure to sign.

Signature: [Signature] Name: WALTER W. SHAWLEY
 Address: 641 ALWIN ST Town: KETCHIKAN State: AK
 Zip: 99501

FROM : BW-LANDING

FAX NO. : 907-225-6900

Oct. 15 2004 01:17PM P 2

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To validate your comments please fill in completely and be sure to sign.

Signature: Kay Sims Name: Kay Sims
 Address: PO Box 6814 Town: Ketchikan State: AK
 Zip: 99901

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Why is it everytime you guys do a timber sale the environmentalist take it to court and get everything stopped. Do you guys do things wrong on purpose. why can't you guys do a timber sale that is okay with the courts. In the private sector people would be fired for making so many mistakes.

To validate your comments please fill in completely and be sure to sign.

Signature: *[Signature]* Name: Mike Svenson
 Address: 104 Shera Dr Town: Sitka State: AK
 Zip: 99835

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URGENT ACTION REQUIRED

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The Emerald Bay Timber Sale is located on the Cleveland Peninsula near Ketchikan. The Forest Service preferred Alternative is Alternative B. This alternative proposes to harvest approximately 16 million board feet of timber from 601 acres. Helicopter logging will be used on 218 acres. 6.2 miles of new roads will be closed to motorized use following the sale. The logs will be barged from the sale. The sale would provide for 86 jobs. The sale is needed to supply timber to our local mills.

Your comments on the Emerald Bay Timber Sale DSEIS are critical to ensuring local input into the finalization of the sale and management of the Tongass National Forest.

Please provide your comments by using this comment form or sending your own letter. Your personal comments are the most valuable.

Thank you.

Mailing address: John Natvig, USDA – Forest Service TEAMS Enterprise, Attn: Emerald Bay, PO Box 241, Fort Meade SD 57741. Fax: (605) 720-7712

RE: Emerald Bay Timber Sale Draft Supplemental Environmental Impact Statement.

1. I support the Forest Service preferred Alternative B for the Emerald Bay Timber Sale DSEIS
☒ AGREE ☐ DISAGREE ☐ NO OPINION
2. The timber sale is needed to support our local mills and economy. The sale will provide active forest management to the area. The harvested areas will provide a better diversity of habitat for the wildlife in the area.
☒ AGREE ☐ DISAGREE ☐ NO OPINION
3. The final timber sale must be economically viable for the potential purchasers.
☒ AGREE ☐ DISAGREE ☐ NO OPINION

Your personal comments here will make this document more valuable. Use additional pages if needed.

*Trees are a renewable resource!!
I want the sale of timber as well
as the building of new roads!
Thank you*

[Signature]

To validate your comments please fill in completely and be sure to sign.

Signature: [Signature] Name: John Natvig
 Address: 2642 Forest Park Drive Town: Fort Meade State: SD
 Zip: 57741

**Mail or Fax by Monday, November 15, 2004
Emerald Bay Timber Sale DSEIS**

URGENT ACTION REQUIRED

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RE: Emerald Bay Timber Sale Draft Supplemental Environmental Impact Statement.

1. I support the Forest Service preferred Alternative B for the Emerald Bay Timber Sale DSEIS

AGREE
DISAGREE
NO OPINION
2. The timber sale is needed to support our local mills and economy. The sale will provide active forest management to the area. The harvested areas will provide a better diversity of habitat for the wildlife in the area.

AGREE
DISAGREE
NO OPINION
3. The final timber sale must be economically viable for the potential purchasers.

AGREE
DISAGREE
NO OPINION

Your personal comments here will make this document more valuable. Use additional pages if needed.

KEY - ECONOMICALLY FEASIBLE

To validate your comments please fill in completely and be sure to sign.

Signature: [Signature] Name: _____
 Address: 3530 DENALI AVE Town: Ketchikan State: AK
 Zip: 99901

Dear Sirs

We support the USFS Emerald Bay Timber sale on Cleveland Peninsula in SE Alaska. We support a multi-use forest concept and jobs for Alaskans!

Thank you

Rondo Ludwig
Janet Ludwig
360-378-9669



Mr. Rondo Ludwig
177 Upper Dr.
Friday Harbor, WA 98250-6937

Appendix D

November 13, 2004

Eric Muench
228 Martin Street
Ketchikan, Alaska 99901

phn & fax 907-225-5372
Email ericmuench@kpunet.net

John Natvig
USDA – Forest Service TEAMS Enterprise
POBox 241
Fort Meade, South Dakota 57741

Attn.: EMERALD BAY

RE.: Emerald Bay Timber Sale Draft SEIS

Dear Sir,

I support the Forest Service preferred Alternative B for the Emerald Bay Draft Supplemental Environmental Impact Statement .

This timber sale is within the Tongass National Forest timber base acreage and suitable for harvest while protecting other forest values of the area. It meets the purpose of providing timber for Southeast area mills while converting timber base acres to manageable second growth stands, ensuring viable future entries for sustained yield.

This sale area has the geographic disadvantage of being a limited size while having to get access across a designated old growth habitat frontage. Alternative B design, which uses roads and conventional logging to fullest advantage, is the only one that produces a cost-effective timber entry. To avoid a deficit sale and minimize below-cost harvesting, it is the only one that makes sense. Other designs are not economically viable for purchasers and thereby frustrate the very purpose of a timber harvest program. Also they create a worse federal budget balance.

Thank you for your attention.

Sincerely,



Eric Muench

October 12, 2004

United States Forest Service
TEAM Enterprise

Emerald Bay
PO Box 241
Ft. Meade SD 57741

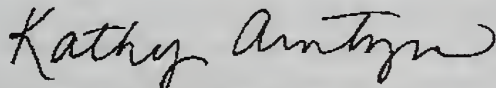
Attn: John Natvig

Dear Mr. Natvig,

We are 40-year residents of Ketchikan Alaska and we are writing you in support of the Emerald Bay timber sale. Ketchikan has been struggling to regain any footing after the devastating loss of our pulp mill and access to the forest. We have lost hundreds of jobs, our population has decreased by thousands and we are really hurting. We respect the surrounding forest and understand that it can be a sustainable and renewable resource. The Ketchikan economy desperately needs this timber sale. On behalf of our children who need funding for our schools, and our families who need to put food on the table: we need jobs.

Thank-you for your consideration.

Sincerely,



Ron, Kathy, Chris, Jena, and Lyndsey Arntzen
1507 Pond Reef
Ketchikan Alaska 99901

Appendix D

Forest Service Response to Robert Adams, Charlie Allen, Jeff Angerman, Ida Barnack, Barry Christensen, James V. Drew, Robert B. Elliot, Ron Flint, William S. Haag, Bill Hendricks, John Johnson, Randy Johnson, Scott Milner, Keith Perkins, Linda Randall, Trevor Sande, Walter Shuham, Kay Sims, Mike Svenson, Cynthia Toohey, Ed Zastrow, Rondo and Janet Ludwig, Eric Muench, and Kathy Arntzen:

Summary of letters: These individuals are in favor of timber harvest in the project area to support the jobs, and people living in SE Alaska. These individuals are in favor of multiple-use and the use of trees, a renewable resource.

All the alternatives, including the No-action Alternative, receive serious consideration by the Responsible Official. Providing timber to provide employment and support the local economy is directed by the Forest Plan, and economic access and harvest are primary considerations for viable timber sales.

Alternative B maximizes the available timber volume in this entry, and is the most economical harvest alternative. The other alternatives represent different means of satisfying the Purpose and Need, by responding with differing emphases to key issues. See "Alternatives Considered in Detail" in Chapter 2, the "Silviculture" and "Timber Economics" sections of Chapter 3. These sections describe the stand treatments, the harvest methods, and the relative financial efficiencies of the alternatives.

The final decision for the Emerald Bay Timber Sale will be made on the best information available after considering all public and agency comments received during the planning process.

Specific comment: There were several comments that did not agree with building an infrastructure (roads and LTF) and then closing it to public use.

These comments were considered but not included as an alternative analyzed in detail for the following reasons:

- The proposed closure of the roads to public motorized use in the project area and the removal of the LTF proposed for Alternatives B and D are site-specific to this project area. The first 2.2 miles are within a land use designation that ordinarily would not be roaded and closure of the road would be more consistent with the goals and objectives of the Old-Growth LUD. This would allow for the road corridor to revegetate more rapidly and cease to be a barrier to wildlife species with less dispersal capability sooner.
- The cost of maintenance of the road and LTF would be higher if kept in constant use. This road system is not connected to a community or easily accessible by boat in all weather conditions. Other road systems could better utilize maintenance funding in areas that receive more public road use. Future entries for timber harvest may not be within a timeframe so that the cost of maintaining the road and LTF would be less than the cost of rebuilding.

See also Chapter 2, section titled "Alternatives Not Analyzed in Detail".

November 24, 2004
 John Natvig
 USDA Forest Service: TEAMS Enterprise
 Attn: Emerald bay
 P.O. Box 241
 Fort Meade, SD 57741

I am concerned with the proposal to conduct logging operations at and around the Emerald Bay area. The bay itself has a valuable ecosystem harboring subsistence foods such as abalone, rock scallops, clams, crab, fish and other dietary delights. On the shores is a host of intriguing geological items including garnets, and horn blend crystal. The traditional uses of the bay have included hunting and trapping. My father, Robert Hunley and a neighbor, Red Campbell, trapped wolves in a set located at Emerald bay and successful harvested wolves when I was a child. Last winter I began trapping in the area and am looking forward to doing it again this winter and in years to come. Three other households from Meyer's Chuck also use Emerald Bay and the surrounding area for trapping. Many people from Meyer's Chuck hunt at emerald bay for deer, occasionally bear, and on some occasions for water fowl. The area is not only home to wolves, deer and other animals targeted by humans, but to the rare cougar as well with tracks and scat having been sited on the beaches. Numerous tourists transiting through Meyer's Chuck inquire specifically about Emerald Bay and comment on hearing about the bay from other travelers. People are looking, specifically, for Emerald Bay and intending to stop there as part of their vacations.

Grut -1

Grut-2

Grut-3

Grut-4

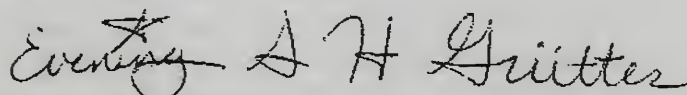
I strongly urge you to refrain from logging in the area. The impacts of a logging operation in the bay would disrupt the healthy waters of the bay, leading to declines in the availability of marine foods in my diet and the diets of others. Operations on the land would lead to the displacement of wildlife from their habitat, reducing the chances of trapping them for furs or for harvesting them for food. Also Log booms and access roads would rearrange the landscape potentially eliminating traditional trapping sites. These sites are difficult to find and I know of only 6 sites on the coast between Eaton Point in Ernest Sound, and Ship Island in Clarence Strait. Most of these sites are located in Emerald Bay and Big Vixen Inlet.

Grut-5

Grut -6

I encourage you to choose alternative A, the no action alternative. It is important to maintain this natural wonder of a bay intact with no log transfer facility, no roads, no clear cuts and no intense human activity. If there is absolutely no way to refrain from logging then please choose Alternative C, helicopter logging. Again, I strongly urge you to choose Alternative A.

Sincerely,



Evening S. H. Grutter
 105 Toivo Circle
 Sitka AK 99835

Appendix D

Forest Service Response to Evening Grutter:

Grut-1:

The Forest Service does not anticipate that logging would disrupt, or result in the decline in availability of marine subsistence foods. The "Marine" section of Chapter 3 discusses the effects anticipated as a result of an LTF. Additional information about subsistence use can be found in the "Subsistence" section of Chapter 3 and "Appendix C, Subsistence Hearings" for the Emerald Bay project.

Many other sites were evaluated for potential LTF locations. The "Marine" section of Chapter 3 discusses the rationale for selection of LTF sites and the anticipated effects by alternative. Additional information about the LTF locations is in the Emerald Bay LTF Reconnaissance Report in the project file.

Grut-2

Subsistence use of deer and waterfowl is not expected to be affected by any alternative (See Wildlife and Subsistence sections in Chapter 3.) An average of 24 deer/year were harvested from the entire WAA from 1987-1994; reported harvest from 1996 to present averages less than 7 deer/year. Emerald Bay comprises approximately 10 percent of the WAA, therefore, although impacts in the Emerald Bay area may increase, they would be of short-term duration and only impact a minor portion of the WAA. Loggers, construction workers, and other hunters and fishermen are required to comply with State and Federal hunting/fishing regulations. Law enforcement personnel would deal with any violations.

Grut-3

The information of the incidental sightings of cougar and cougar signs has been added to the Wildlife section of Chapter 3. Cougars have very large home ranges and may utilize the project area. Cougars rely on similar prey species as the wolf and their associated habitat needs. For purposes of this analysis it could be assumed that the affects to cougars would be similar to that of wolves ("Wildlife" section, Chapter 3).

Grut-4:

For Alternative A, no change would occur. The harvest proposed for Alternative C would be at least 2 miles inland and would not affect uses of the bay. For Alternatives B and D, the LTF would be removed after use and the roads closed to public motorized use, allowing the area to revert to a more natural condition as soon as possible. The closed road could provide walk-in access to tourists. Most of the harvest would not affect the scenery from the bay. The "Cleveland Roadless Area", "Scenery" and "Recreation" sections discuss the recreational values of the project area and the effects of the alternatives would have on those values.

Grut-5:

The No-action Alternative will be considered along with the rest of the alternatives. The "Marine", "Fisheries", "Subsistence", and "Wildlife" sections of Chapter 3 discuss potential effects to these environments. The closed road could provide walk-in access for tourists and hunters; use is expected to be minimal due to distance from population centers and rough sea conditions. In addition, the road is expected to be revegetated with alder within 20-30 years.

Grut-6:

The "Wildlife" section of Chapter 3 discusses the anticipated effects of increased access on furbearer species, such as wolves and marten. The adverse effects on known trapping sites would vary through the range of alternatives. Alternatives A or C would not likely have an adverse impact on trapping sites, while Alternatives B or D may have localized adverse impacts on trapping sites in the proximity to Emerald Bay. Impacts would be of a short duration, while harvest activities are in progress. None of the alternatives would have any impact to trapping sites in Vixen Inlet.

November 11, 2004

John Natvig
 USDA Forest Service: TEAMS Enterprise
 Attn: Emerald bay
 P.O. Box 241
 Fort Meade, SD 57741

Dear Mr. John Natvig,

We are long-time residents of Meyers Chuck, a small fishing village on the Cleveland Peninsula. I have lived at Meyers Chuck for 31 years. My children were born at Meyers Chuck and maintain property here also. We are a commercial fishing family, participating in fishing for salmon, halibut and black cod, sea cucumber diving, crabbing and gill-netting, amongst our family members. We are most-importantly a family of hunter/gatherers. Utilizing the forests for subsistence as well as enjoyment and recreational activities.

I have been reviewing the Draft Supplemental Environmental Impact Statement (DSEIS) for the proposed Emerald Bay Timber Sale. After careful consideration of all alternatives, alternative A is the best selection. Alternative C offers some consideration for maintaining the integrity of the area by eliminating the devastating effects of clear-cut logging practices, using uneven-aged management and helicopter logging. After reviewing the other alternatives, I think Alternative C is by far the best alternative to meet the needs of all interested parties and users of the forest, not just the special interest of one particular group.

Hunl-1

Alternative A, the no-action alternative maintains the integrity of wildlife habitat and the old growth forest reserve in the best possible way. Alternative C allows for no clear-cuts, no road building, and very importantly, no log transfer facility (LTF), offering a compromise between the no-action alternative and the roaded, logging alternatives.

During the many years of the TLMP Revision process concern about positioning of an LTF on the West side of the Cleveland was expressed over and over. An LTF would greatly impact the area by bringing in people, their waste, garbage and free for all lifestyle.

Emerald Bay is ideal for primitive recreational use, hiking, rock-collecting and beach-combing as well as subsistence hunting, fishing, harvesting of mushrooms and wild plants, commercial fishing and trapping, all traditional uses of the area. The rock collecting on this beach is amazing. I have found rocks resembling amethyst and a friend in Wrangell has found garnets on this beach. The location of an LTF at Emerald Bay would ruin the beach and the area. We were assured more than once there would be no LTF at Emerald Bay, Big Vixen Inlet, Union Point or Black Bear Creek, please do not put an LTF in the area.

Hunl-2

Economic viability, in relation to the proposed alternatives, should not be the main consideration in any determination. If a value added timber industry had been in place generations ago, using selective logging techniques and careful consideration for the land, water and air, many of the problems we face now would not exist. If the forests in the lower 48 had truly been managed on a

Hunl-3

sustained yield basis, jobs would not have been lost and there would have been a sustained future for the timber industry. Instead the forests were laid to waste, the land and animals poisoned, (sprayed poison foam to kill mountain beavers, for example). The trees were then exported along with processing jobs, instead of building a value-added product job base in America. Once the forests were clear-cut and job opportunities dwindled, people began to seek employment out of state and many came to Alaska.

Hunl-3 cont.

The forest should be managed for all users. We should plan to maintain the integrity of the Tongass and all it stands for; multiple-use and sustained yield, subsistence, commercial fishing, sport-fishing, hunting and gathering, recreation and tourism. Is that not the mandate? To maintain and manage the forests for all of the public, not just the timber companies?

Hunl-4

Emerald Bay is at a strategic location in regards to a "pinch point" that joins Cleveland Peninsula with the mainland and British Columbia. This connection gives way to a unique array of wildlife. We've had the privilege of witnessing a variety of animals (and birds) over the years. In the spring of 1997, my husband, daughter and myself saw a large cougar, here, in our yard and garden at Meyers Chuck. On September 4, 2004 I saw the prints of a cougar along a creek bed not far from our home. Although I did not see the cat that time, I was happy to see the prints and thankful to live in such a wild place.

Hunl-5

In June of 2003, in daylight, a hoary marmot was here, under our house and then in the yard. Five of us witnessed this visitor. A mountain goat made a brief visit and was run off by barking dogs in 1974. Neighbors told us of seeing a lynx cat at our homestead the summer of 1973, just before our arrival here. Yes, the Cleveland is a unique old growth habitat with much potential for the future, it should be left intact.

What of the marbled murelett? I did not see mention of it in the DSEIS? Marbled murelts are known to live on the Cleveland. We see them and have been told of efforts to try to find their nesting sites, which to my understanding is not an easy task. I was under the impression that one or two sites were found at or near Emerald Bay, (and at Big Vixen Inlet), some years ago by biologists. What has happened to this data?

Hunl-6

The Cleveland is one of the largest blocks of road less area left in Southern Southeast Alaska that is not primarily alpine rocks, snow and ice, (other than Misty fjords). It is felt to be unique by wildlife biologists both for its abundance of wildlife and diversity of species. The Forest Service planning (TLMP Revision) started in 1984, with several studies, hearings and comment periods over almost two decades. The great majority of public comment received called for greater protection for our forests.

Hunl-7

Many Alaska residents and subsistence users want to preserve a traditional way of life. If Alaska's forest wildlife habitat end up laid to waste by clear-cutting, all Americans will be the ultimate losers. The public would be better served by expanding reserves and providing more protection for vulnerable forest areas, such as Emerald Bay and the entire Cleveland Peninsula, long-valued for hunting and fishing and important to the regions growing tourism industry.

Data accumulated and presented over the years of the TLMP revision process shows over and over again that rotations of at least 200-300 years are necessary to possibly maintain the quality of habitat necessary to nurture and maintain healthy wildlife populations.

Hunl-8

Emerald Bay should remain roadless. No log transfer facility, logging camps or log storage areas should be positioned at Emerald Bay or in the vicinity of Big Vixen Inlet, Little Vixen Inlet, Union Point or Black Bear Creek. Please leave this fragile ecosystem intact, allowing for the continued traditional use of the area by subsistence users, trappers, recreational users and the ever expanding tourism industry.

Hunl-9

Sincerely,

Robert Hunley
Jacquelyne Hunley
Jacquelyne and Robert Hunley
Meyers chuck, Alaska

Appendix D

Forest Service Response to Jacquelyne and Robert Hunley:

Hunl-1:

All the alternatives, including the No-action Alternative, receive serious consideration by the Responsible Official. The final decision for the Emerald Bay Timber Sale will be made on the best information available after considering all public and agency comments received during the planning process.

Hunl-2:

Many other sites were evaluated for potential LTF locations. The "Marine" section of Chapter 3 discusses the rationale for selection of LTF sites and the anticipated effects by alternative. Additional information about the LTF locations is in the Emerald Bay LTF Reconnaissance Report in the project file. An interagency team comprised of USFWS, ADF&G, and USFS personnel evaluated 2 miles of shoreline near Emerald Bay. Six potential sites were evaluated and the best overall site was selected. Site selection was based on the presence of steep uplands limiting access to LTF locations, bathymetry (water either too steep or too shallow, presence of reefs), anticipated LTF cost, and the Alaska Siting Guidelines. Alternatives A and C do not have a LTF in Emerald Bay so the effects can be displayed and compared with having an LTF in Alternatives B and D.

Hunl-3:

Two significant issues were identified for this project. Timber economics was one issue, and roadless and old-growth values was the other issue. Each issue was given equal consideration and is addressed by the alternatives to varying degrees. All resources within the project area and effects to these resources were analyzed for each alternative. The decision will be based on the consideration of this analysis, public comment, and Forest Plan and national direction.

Hunl-4:

The Tongass National Forest is managed for all uses but of course, not every use can be on every acre. The Forest Plan has 19 different management prescriptions (land use designations) with different emphases. Timber production is only emphasized for one of these and allowed in two others. The Multiple-Use Sustained Yield Act and the National Forest Management Act includes timber harvest as part of the uses of National Forest System resources.

Hunl-5:

Connectivity analysis is recommended to be done at the landscape level (Forest Plan, p. 4-120); however, it was addressed for this project to address effects on a "pinchpoint" across the peninsula. Habitat connectivity is discussed in "Wildlife" and "Biodiversity" sections of Chapter 3. Additional information on the effects of the project alternatives and wildlife movements is discussed for individual species in the "Wildlife" section of Chapter 3.

Information on the incidental species sighted in Meyers Chuck is included in Chapter 3 (Wildlife) of the Final SEIS.

Hunl-6:

Marbled murrelets are not a Federally listed species, nor are they listed as a Forest Service R10 Sensitive Species, or as a Tongass National Forest management indicator species. Surveys suggest that marbled murrelets are numerous and widespread throughout the coastal waters of Southeast Alaska (Forest Plan FEIS 3-358 and DeGange 1996). During the planning process, an interagency conservation assessment was conducted; they determined that the murrelet conservation strategy should consider a reserve-based approach. Marbled murrelets are usually found using high-volume old growth in close proximity to the coast. The OGR in the project area, adjacent to the coast, would continue to provide old-growth nesting habitat for this species.

The District marbled murrelet files were checked. According to available data, no nests have been recorded in the Emerald Bay vicinity. Eggshells were found in Cannery Creek, approximately 10 miles south of the project area. Field personnel are trained in the identification of marbled murrelets and sightings are reported to a biologist for follow-up. If a nest is located, a 600-foot buffer would be maintained around the nest and disturbance minimized during the nesting season (May 1-August 15).

Hunl-7:

The ROD for the Forest Plan SEIS (pgs. 8-15) discusses the need for more wilderness. On page 15 it concludes that it is not appropriate to change the mix of LUDs on the Cleveland Peninsula at this time.

The Forest Plan ROD (p. 3,7) discusses the decisions and trade-off made for land use designations. Part of the Cleveland was designated for non-development, part for timber harvest, and other activities are allowed in other areas.

The "Cleveland Roadless Area" section of Chapter 3 discusses the affects by alternative on the roadless area characteristics.

Hunl-8:

The “Silviculture” section of Chapter 3 states that there are 957 acres of suitable timber in the Timber LUD portion of the project area. The unit pool consists of 620 acres of those suitable lands leaving about 337 acres of suitable land that would still provide habitat at a longer rotation age. This section also describes stand attributes before and after harvest. The “Biodiversity” section of Chapter 3 discusses the changes to POG in the project area. The Appendix N of the Forest Plan FEIS (pgs. 38-41) discusses the benefits to goshawks of having extended rotations for the maintenance of that habitat. Forest Plan direction for the Timber Production LUD describes the desired condition for this LUD as the majority stands are managed for younger age classes to rotation age. Longer rotation ages such as 200-300 years may be appropriate if a goshawk territory was found within the Timber LUD.

Hunl-9:

See Comment Hunl-2 and Hunl-7 in regard to LTF location and need. The “Cleveland Roadless Area” section of Chapter 3 discusses the effects to the characteristics of roadless area. The results of the subsistence hearings are recorded in Appendix C. Additional subsistence information is found in the “Subsistence” section of Chapter 3. It found that there is little documented use of the project area for subsistence needs.

Appendix D

NOV. -30' 04 (TUE) 16:49

USFS KETCHIKAN-MISTY

TEL: 9072258738

P. 002

FROM : FJ JJ

FAX NO. : 9072477172

Nov. 25 2004 25:47PM P1

November 26, 2004

Sent Via Fax

John Natvig
USDA Forest Service; TEAMS Enterprise
PO Box 241 Fort Meade, SD 57741

Re: Comments on Emerald Bay Timber Sale Draft SEIS

Dear Mr. Natvig:


Please reconsider Alternative A for the Emerald Bay project. The original Emerald Bay project was proposed to evaluate the economic viability of long-distance helicopter yarding - and then this was found to be economically unfeasible due to a "weak" timber market which is now "substantially weaker than it was 3-5 years ago when the Draft EIS was published" (p.S-5 2004 Draft SEIS). In February 2002, the Forest Service Alaska Regional Office reversed the Emerald Bay Timber Sale in part due to these poor timber prices, and in part to local opposition to the start of a massive roading plan for the Cleveland Peninsula area. How can 400 acres of clearcut in, or anywhere near the Old-growth Habitat Reserve which is the main component of the Forest-wide habitat conservation system, make any kind of economic sense now? And, economic sense for whom? The timber market has gone from bad to worse and local residents need unroaded, unlogged areas now more than ever. Increasing numbers of visitors to Alaska (they ARE increasing) come to see uncut places and unstressed wildlife. Your own studies in the current Draft SEIS show quite an impact on Emerald Bay wildlife, whether one chooses to realize it as such. An exclusive remote fishing lodge is located only five miles from this proposed project and employs 35 or more people every year and some year-round. The rates for the lodge are between \$600 and \$700 a day exactly because it is in a "remote, pristine location". It has certainly provided more jobs and money for the local economy over the past 30 years than a one time timber cut and export. Will the cedar that is cut be made available for the local SMALL mill operators? Thank you for considering these comments and questions.

Jaco-1

Jaco-2

Jaco-3

Jaco-4


Jill Jacob
PO Box 1721
Ward Cove AK
99928

Forest Service Response to Jill Jacob:

Jaco-1

Timber market prices have fluctuated since the start of this project but were not a factor in the reversal of the original Emerald Bay decision, nor was local opposition to any roading part of the reason for reversal. Timber economics are discussed, and compared by alternative, in the “Timber Economics” section of Chapter 3.

Jaco-2

Effects of the Emerald Bay project on Cleveland Roadless Area #528 are also discussed in the “Cleveland Roadless Area” section of Chapter 3. The effects of the alternatives on old growth is discussed in the “Biodiversity” section of Chapter 3. Options were considered in Chapter 2 (Alternatives Not Analyzed in Detail) to adjust the location of the OGR, but were determined to be less desirable in terms of location and function.

Jaco-3

All local employment has been considered but is hard to quantify because of the seasonal aspects of lodges, logging and fishing. Generally, a diverse economy is more desirable than relating on one type of industry. The effects of timber harvest and roadbuilding on scenery and wildlife have been analyzed. The effects to scenery that will occur from the visual priority routes is expected to be minimal. The Old-growth LUD occupies 67 percent of the project area and is located in the foreground related to the visual priority routes (Figure 1-2). The “Scenery” and “Recreation” sections of Chapter 3 discuss the alternatives' anticipated effects on recreational use and the scenic qualities of the project area. All Wildlife and Scenery Forest Plan Standards and Guidelines will be met. Although the timber industry has declined, there are still timber operators in Southeast Alaska that utilize timber from the national forest and help to provide a balance in the local economy.

Jaco-4

As stated in the “Timber Economics” section of Chapter 3, the sawmill employment figures have been calculated for local milling of the hemlock, spruce, and western redcedar and the export of Alaska yellow-cedar. The sale purchaser has the option of milling or exporting the Alaska yellow-cedar. Our records indicate that about 25 percent of the Alaska yellow-cedar has been domestically processed in recent years.

Linn Barrett
4305 29th Street Road
Greeley, CO 80634

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

November 20, 2004

Re: Please select the "No Action" alternative!

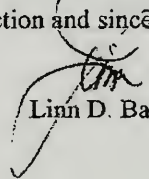
Dear Mr. Natvig and Forest Service staff,

I urge you to please select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for road-building and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and road-building in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, I urge you to please adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

With utmost conviction and sincerity,


Linn D. Barrett

November 18, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
ATTN: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

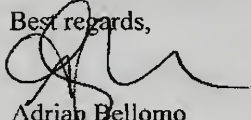
Dear Mr. Natvig and Forest Service staff,

I urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Best regards,



Adrian Bellomo
221 Kipling Street
Palo Alto, CA 94301

Appendix D

November 19, 2004

Mr. John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig:

I am writing to urgently ask that you select the "No Action" alternative for the Emerald Bay timber sale and to withdraw the proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest.

The Tongass is a crown jewel of our National Forest system. It is a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife.

The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula.

The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

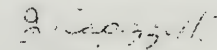
I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

This is an area that deserves to be preserved, not torn apart.

I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Thank you for your help in this important matter.

Respectfully,


J. Capozzelli
315 West 90 Street
New York, NY 10024

Jacob Golding
14588 Mayland Villa Rd.
Lincolnshire, IL
60069

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

November 21, 2004

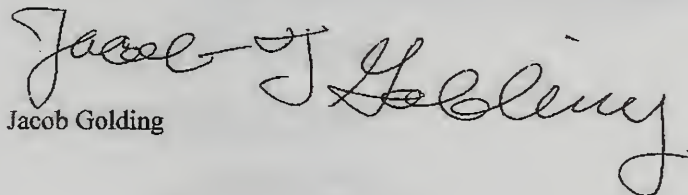
Dear Mr. Natvig and Forest Service staff,

I urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Sincerely,


Jacob Golding

Appendix D

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

November 22, 2004

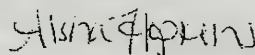
Dear Mr. Natvig and Forest Service staff,

I strongly encourage you to choose the alternative, "No Action" for the proposed Emerald Bay timber sale. The proposal for road building and logging in the Cleveland Peninsula of the Tongass National Forest should be withdrawn immediately. I do not agree with taxpayer funding supporting the destruction of the wildest areas of the Tongass National Forest.

The Tongass is home to hundreds of species including: deer, marten, wolves, grizzly bears, black bears, and the world's largest breeding ground of bald eagles. By building more than six miles of roads through the middle of the Tongass National Forest you would destroy their habitat. The proposed Emerald Bay timber sale includes logging over six hundred acres using three million dollars of taxpayer's money to support timber companies. If you proceed with this plan, the untouched Cleveland Peninsula will be clear-cut, leaving just patchwork to show of the United States largest national forest. Road building and logging in the Cleveland Peninsula would "degrade the value of wildlife habitat," agrees the U.S. Fish and Wildlife Service.

The Tongass National Forest is an area that we should all treasure; for it is one of the few unspoiled lands left. This sacred place should be preserved, not destroyed. I am sixteen years old and I have not yet had the opportunity to visit the Tongass Forests. I hope these lands will remain well-preserved and as beautiful as they are now. I wish you would take the "No Action" alternative, and remove the Emerald Bay timber sale.

Sincerely,



Aisha Hopkins
5821 Reid Drive NW
Gig Harbor, WA 98335

*Note that this letter is also being sent to President George W. Bush.

Withdraw the Emerald Bay timber sale

November 26, 2004

John Natvig
 USDA Forest Service
 TEAMS Enterprise
 Attn: Emerald Bay
 P.O. Box 241
 Fort Meade, SD 57741

Dear Mr. Natvig and Forest Service Staff,
 I urge you to select the the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for road building and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system — a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sales would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the homes of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Sincerely,
 Melina Horn

Melina Horn
 1542 W. Antelope Lane
 Williams, AZ
 86046

Appendix D

Nov. 19, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig and Forest Service staff,

I urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Sincerely,

Rachel M. Moses

November 20, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Mr. Natvig:

We urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for road building and logging in the roadless Cleveland Peninsula of the Tongass National Forest. We strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and road building in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, we urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.


Ms. Abbe Alpert


Dr. Steven Abrams



Sisters of St. Joseph of Carondelet

St. Louis Province

Social Justice Office

November 22, 2004

Celebrating

justice

and service

for over

350 years.

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig:

I write with over 600 sisters and Associates asking you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for road building and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and road building in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart.

We believe strongly in preserving the beauty and treasure of Emerald Bay forests, and that their long term value is greater than mere dollars from a timber sale.

Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

I will expect your response soon.

Sincerely,

Diana Oleskevich mph/msw

6400 Minnesota Avenue • St. Louis, MO 63111-2899
Telephone: 314-678-0317 • FAX: 314-351-3111 • e-mail: socialjustice@csjst.org
www.csjst.org

November 19, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig and Forest Service staff,

I urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for road-building and logging in the roadless Cleveland Peninsula of the Tongass National Forest.

Please be acutely aware of the legacy that will survive you and your staff. All our names are linked to our actions and the changes we leave in our wake. People in your position have a responsibility to make the extra effort and be wise enough and to put forth the effort to meet our nation's goals and not annihilate the things that can not be replaced. I ask you to not erode irreplaceable resources for short term gains.

There are ways to have both the things that we need to live and still protect the systems of the world that support us all.

Theodore Roosevelt once said:

"American democracy will never be destroyed by outside enemies -- but it can be destroyed by the malefactors of great wealth who subtly rob and undermine it from within."

Democracy's and environments are much alike.

I urge you to not let this government sell our irreplaceable resources for short term profits.

I strongly oppose taxpayer subsidies for destroying national public lands in the Tongass.

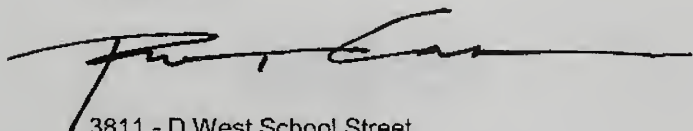
The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten.

Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

This is an area that should be preserved, not torn apart. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Please consider my request
Thank you for your time

Robert Coon



3811 - D West School Street
Chicago, Illinois 60618

Malcolm R. MacPherson, Ph.D.

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

November 20, 2004

Dear Mr. Natvig:

I understand the Forest Service plans to subsidize logging in the Tongass National Forest. The proposed Emerald Bay timber sale would build about six miles of roads and log over 600 acres through the Cleveland Peninsula. How can you do that? That would violate the Roadless Area Conservation Rule, which has the overwhelming support of the American people. Four years ago, 2.2 million of us commented in favor of Forest Service roadless area protections for our last wild national forests.

The Tongass is part of the world's largest intact temperate rain forest, providing critical habitat for wolves, grizzly bears, bald eagles, and other wildlife that have been depleted in the rest of the country. The U.S. Fish and Wildlife Service found that logging and road-building in the Cleveland Peninsula would "degrade its value as wildlife habitat." This sale could cost taxpayers \$3 million in subsidies for timber companies. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

This is an area that should be preserved, not torn apart. I urge you to select the *No Action* alternative for the Emerald Bay timber sale and to withdraw your proposal for road-building and logging in the roadless Cleveland Peninsula of the Tongass National Forest.

Sincerely,



Dr. M. R. MacPherson

34 Coyote Mountain Road
Santa Fe, NM 87505

Phone: 505-989-9502
Fax: 505-989-8699

November 22, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig and Forest Service staff,

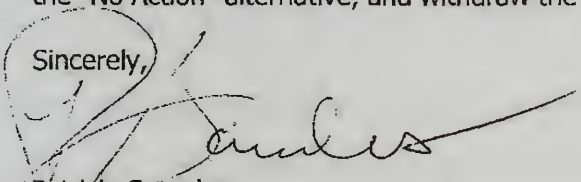
Please select the "No Action" alternative for the Emerald Bay timber sale. I also urge you to withdraw your proposal for road building and logging in the roadless Cleveland Peninsula of the Alaska Tongass National Forest.

I don't think taxpayers should have to subsidize the destruction of the last, wild areas of the Tongass—the jewel of our National Forest system.

This rainforest is unparalleled anywhere.

This is an area that should be preserved, not ruined. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Sincerely,



Patricia Saunders

117 East Louisa

#160

Seattle, WA 98102

(206) 852-8603

Dear Mr. Natvig

Please select the "No Action" alternative for the Emerald Bay Timber sale and ~~to~~ withdraw your proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass. This unique area should be preserved. Thank you. Jane Shofar

John NATvig
 USDA Forest Service
 TEAMS Enterprise
 ATTN: Emerald Bay
 P.O. Box 241
 Fort Meade, S.D. 57741

KEVIN Carroll
 1827 W. ESTES
 Chicago, IL 60626
 11/19/04

Dear Mr. NATvig & Staff,

I am writing to express my opposition to the proposal for road building and logging in the Cleveland Peninsula of the Tongass National Forest. It is beyond reason for the taxpayer to assume the burden of paying for building roads in one of the last remaining temperate rain forests in the world, especially in light of the recent Congressional vote to increase the national debt by another \$200 billion!

I urge you to consider future generations, both vis a vis the national debt, and also in terms of ~~not~~ protecting our national heritage.

Please, adopt the "No Action" alternative, and do not proceed with the proposed Emerald Bay timber sale. Thank you.

Kevin Carroll

Dear Mr. Nading and Forest Service Staff,

I ask you to please withdraw your proposal for roadbuilding and logging in The Tongass National Forest - in particular at the moment - the Cleveland Peninsula.

I believe there are some areas in our country that need to be protected. In our forests there are few old growth areas left and nothing like the Tongass.

Please use other areas for sustainable logging. Protect habitat and wildlife. Many jobs and money are generated from saving them.

Thank you.

Please help.

Sincerely, Nancy Robinson

28979 Hartbort

Corvallis OR

97333

November 18, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Dear Mr. Natvig,

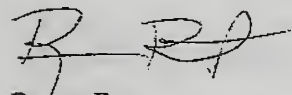
I urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest.

The summer of 1993, I worked as a seasonal contractor for the Forest Service on the Tongass, specifically Prince of Wales Island. We were laying out harvest units in unroaded areas. I remember one inlet we traveled to by boat; it was so incredibly beautiful with the only wolf tracks we found that summer. Even the hard-core loggers in our group agreed it should be left alone. Instead we learned that a District Ranger especially wanted a road built there so it couldn't be counted as roadless.

Logging is an economic venture that should avoid impacts to sensitive areas. As a taxpayer, I expect harvest of public forests to be profitable, public subsidies for clearcuts is not acceptable. I expect that logging should be restricted to less sensitive areas. This proposal not only makes no financial sense, but the Cleveland Peninsula is replete with bear, eagles, wolves and other wildlife.

Please leave this area alone. Someday I would like to travel there and see it and experience it. I think many Americans would pay good money for the same. Instead of roads, consider hiking trails. I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Best Regards,



Byron Rot
2972 Eddy St
Port Townsend, WA 98368

Appendix D

ST. JOHN'S HOUSE / MAISON ST-JEAN
840 NOTRE-DAME AVE.
ST. LAMBERT, QUÉBEC
J4R 1R8

CANADA

November 23, 2004

Mr. John Natvig
USDA Forest Service
Fort Meade
SD 57741

Dear Mr. Natvig,

I understand that the Emerald Bay region of the Tongass Forest in southern Alaska is to be opened to rapid cutting of forest. I am concerned to express my opinion on this matter.

I think that the deforestation which will result endangers the wild life of that area, and could lead to the extinction of even more species of birds, small and large animals and of creatures which rely on the shore-line and the waters.

I ask you to use your influence to moderate the force of this onslaught. There are many more alternatives to wood products now, and these initiatives need encouragement so that the forests of the world may continue to provide protection and habitat to creatures.

Thank you for considering this request.

Yours sincerely,

Sister Berge Stone, SSJD

138 West Hill Terrace
Painted Post, NY 14870
November 20, 2004

John Natvig
USDA Forest Service
TEAMS Enterprise
P.O. Box 241
Fort Mead, SD 57741

RE: Emerald Bay

Dear Mr. Natvig:

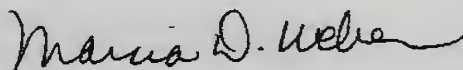
I am very disturbed at the thought of logging in the roadless area of the Tongass National Forest.

Please select the "No Action" alternative for the Emerald Bay timber sale and withdraw your proposal for roadbuilding and logging in the Cleveland Peninsula. It would be a crime to destroy such a wild area.

I'm sure you know all the facts about the area as a wildlife habitat and coastal rainforest. Please do not allow this to be destroyed for the short-term benefit of a few businesses. We must preserve our wilderness for ourselves and our children.

Thank you.

Sincerely,

A handwritten signature in cursive script, reading "Marcia D. Weber".

Marcia D. Weber

Appendix D

Forest Service Response to Linn D. Barrett, Adrian Bellomo, J. Capozzelli, Jacob Golding, Aisha Hopkins, Melissa Horn, Rachel Moses, Diana Oleskevich, Robert Coon, M. R. MacPherson, Patricia Saunders, Jane Shofer, Kevin Carroll, Nancy Robinson, Brian Rot, Beryl Stone, and Marcia Weber:

These are primarily issues derived from the above letters requesting that the No-action Alternative be selected. Commenter concerns centered on the following issues:

There should be no roadbuilding/logging on roadless Cleveland Peninsula of the Tongass National Forest.

FS Response: The Forest Plan guides management of National Forest System lands within the Tongass. This project is intended to implement Forest Plan direction for the Timber Production LUD and move the project area toward the desired future conditions in the Forest Plan. Other areas on the Cleveland peninsula have been designated for non-development using the Old-growth Habitat LUD and the Semi-Remote Recreation LUD. The Cleveland Roadless Area #528, and effects of the project alternatives are discussed in the "Cleveland Roadless Section of Chapter.

I am opposed to taxpayer subsidies for destroying wildest parts of the Tongass – this sale could cost taxpayers \$3 million.

FS Response: Congress has approved funding to implement the direction of the Forest Plan. Part of that funding is allocated toward the management of the development LUDs that would include road construction and timber harvest. Issues concerning the expenditure of programmatic funding are beyond the scope of project level analysis.

USFWS found that logging and roadbuilding in this area would degrade its value as wildlife habitat.

FS Response: The Forest Service project ID Team Forest Staff and the Deciding Officer consider input from USFWS and other Federal and State agencies during project analysis. The ID Team and Deciding Officer have worked closely with personnel from the USFWS. The statement referenced here is from the USDI's DEIS comment letter dated May 5, 2000, under a section titled "Road Management", and the sentence actually reads: "Construction and use of logging roads will substantially alter the character of the area, affect future development options, and, we believe, degrade the Cleveland Peninsula's value as fish and wildlife habitat." The Forest Service responded that proposed roads in the Emerald Bay project have been designed to avoid aquatic degradation, including log-stringer bridges at stream crossings (rather than culverts), avoidance of steep, unstable terrain, and minimization of footprint and hydrologic interception. The "Marine" and "Transportation" sections in Chapter 3 disclose a number of ways that the adverse impacts of road and LTF construction would be minimized. All classified roads would be placed into storage and all temporary roads would be decommissioned after logging activities are complete, and stringer bridges would be removed.

The No-Action Alternative should be selected.

FS Response: All the alternatives, including the No-action Alternative, receive serious consideration by the Deciding Officer. The final decision for the Emerald Bay Timber Sale will be made on the best information available after considering all public and agency comments received during the planning process.

Cascadia Wildlands Project Alaska Field Office

POB 853

Cordova, AK 99574

November 29, 2004

John Natvig
USDA Forest Service; TEAMS Enterprise
ATTN: Emerald Bay
POB 241
Fort Meade, SD 57741

Dear Mr. Natvig,

Please consider the following comments of Cascadia Wildlands Project, and myself as an individual, regarding the Emerald Bay Timber Sale Draft Supplemental Environmental Impact Statement. The proposed action would log about 620 acres of old growth, build 6.2 miles of road in a roadless area, and construct a new LTF in Emerald Bay, on the north side of the Cleveland Peninsula in the Tongass National Forest.

First, why are we writing this letter to South Dakota? We would greatly prefer that local ranger districts assume maximum responsibility for actions in their area. Not only does this assure a better-informed and conscientious IDT, but it provides for local employment too.

CWP-1

We support Alternative A, No Action.

This document does more to disclose and consider mitigation of impacts, than of the impacts themselves. In almost every section a conclusory sentence or two is devoted to disclosing impacts, and is followed by paragraphs listing mitigation measures, and reasons why impacts might not be as big as they could. Please quit this endless repetition of Forest Plan provisions, and consider the project's environmental impacts.

CWP-2

We are disappointed the DSEIS doesn't contain any decent maps or pictures. Other recent NEPA documents coming out of the Tongass have been first-rate in terms of mapping. Aerial photos in unit cards are also extremely helpful. This is not the place to cut costs. Please release some decent (and accurate) maps, and re-start the comment period.

CWP-3

Appendix D

PURPOSE AND NEED

There is no need to log this forest. Nobody needs the wood very much, and if they did there is plenty available from other sources. We urge you to quit logging what little old-growth there is left, especially within roadless areas.

CWP-94

CUMULATIVE EFFECTS

What is the basis of the Project Area boundary, given that it establishes the basis for quantification of impacts?

CWP-4

What is the basis for the conclusion that there are no other foreseeable actions within the analysis area? Has pre-commercial thinning been precluded for harvest units? Might future entries be desirable? Once the road is in place that will make future entries by this route that much more attractive to foresters.

CWP-5

MONEY

Please refigure the regional timber supply and demand statistics. The DSEIS is incorrect to conclude this issue is outside the scope of review. (DSEIS, p.1-12) NEPA requires information to be of high quality. "Beyond the scope" is not a very good excuse for using inaccurate information to justify the economic need for timber sales.

CWP-6

It seems backward logic that the preferred alternative is for a bigger timber sale, "in consideration of ... low timber market prices." (SDEIS, p.2-1) Remember your responsibility is to the forest, not the timber industry. The public lands should not be used to subsidize failing industries. Also, since impacts to regional supply and demand are not being considered, the SDEIS fails to disclose the basis for this change. If your market information is good enough to switch preferred alternatives, then it should be good enough to put in the SDEIS.

CWP-7

It is outrageous that the Forest Service proposes to sell old-growth cedar for export.

CWP-95

This timber sale isn't economic, particularly if the full indirect costs (to tourism, fishing, subsistence, non-market benefits) were considered. Please consider these impacts.

CWP-8

ROADS

The "Transportation" section is very weak, particularly in considering long-term impacts.

CWP-9

It is not possible to just erase a road. Closure will not be very effective, particularly for the portion of the road within the old-growth LUD. "Temporary" roads share most of the same, negative impacts as permanent ones. Legal designations notwithstanding, roads will provide motorized and nonmotorized access to hunters, change hydrology in wetlands, alter vegetation and cover type, interrupt migration for some critters and provide trails for others, destroy primitive scenery and roadless characteristics, among other impacts.

Placement of debris and digging a few ditches is not really "obliteration." Roads would still be apparent for many decades. Even under Maintenance Level 1, "maintenance is performed to perpetuate the road and to facilitate future management activities." This is still going to be a road.

CWP-96

Later, to make an excuse for damage to soils from roads, the DSEIS admits the closed road will cause "ecological damage" because, "in most cases reclamation of shot rock roads is not practical," and so rock would be left in place, "effectively reducing the productivity of the site." (3-55).

The Emerald Bay Road Analysis should be considered in this NEPA document, at least in terms of cumulative effects. Roads in the Tongass have escaped NEPA analysis for too long, falling between analysis of the TLMP and specific projects. Please disclose the cumulative impacts of transportation decisions.

CWP-10

The term "low-impact road" is new to us. What is proposed might more accurately be termed a "cheap" or "sketchy" road. Are there any precedents on the Tongass for using this method?

CWP-11

What are the safety considerations of such a narrow road?

CWP-12

Adding up acres actually converted to road is a very misleading and inaccurate way to evaluate impacts. (p. 3-12) This figure is an understatement, as it does not include turnouts, corners, slopes, parking areas, and other features that will inevitably be constructed as part of the road. It also fails to consider the clearing that will be

CWP-13

Appendix D

done for safety reasons, in excess of the 14 feet of actual road.

The DSEIS says, "However the construction of the road would remove trees and create a linear feature, with edge effects, through OGR." (DSEIS, p.3-12) What edge effects? What is the significance of a "linear feature?" What is the difference between "removing trees" and "timber harvest?" This road, LTF and associated infrastructure will seriously degrade the OGR.

CWP-14

Thank you for field verifying all units and roads. There is not substitute for detailed, on-ground knowledge of the forest.

We are concerned that this cheap road will cause surface erosion.

CWP-97

The proposed action will reduce maintenance funding available elsewhere in the Forest. There is a huge backlog, and money spent in one place is always taken from another. Foregone maintenance has negative impacts, especially on fisheries and watersheds, that should be considered.

CWP-15

The cumulative effects consideration (p.3-70) is inadequate. What is the basis of using VCU 7210 to analyze cumulative effects?

CWP-16

It isn't generally true that log stringer bridges don't require instream work. (p.3-71) Repeated equipment crossings are made during construction and deconstruction and maintenance. Streams sometimes have to be channelized to preserved the stringer bridges. Log stringer bridges often washout or collapse.

CWP-17

The road card for Road 8645900-1 says 60% of the road is on wetlands, while the accompanying map shows 100% wetland. The narrative says "a rock pit" will be necessary on wetland, while the map shows three of them. It says closure "should be adequate to discourage ATVs from crossing streams and wetlands," but that is difficult to explain since the streams in question are only a few feet wide and no more than 20 cm deep. Any hunter who could be intimidated by such obstacles is little threat to wildlife anyway.

CWP-18

The first portion of section 2 of this road, according to unit card maps, runs along a stream that is not shown on the road card map, or mentioned in the road card.

CWP-19

SILVICULTURE

As a general thing we are wary of the ability of selection harvest to mitigate impacts to old-growth forest ecosystems. But to say that selection-harvest stands "maintain many of their old-growth characteristics" overstates the case. (DSEIS, p.3-8) The differences are towering as compared with the similarities. Certainly, retaining some stand structure can't hurt, and we commend you for doing it. But what will be left won't be an old-growth forest, or anything like it.

CWP-98

The proposed action continues the misguided policy of high-grading out the best, highest volume old-growth. The DSEIS (p.3-10, 3-11) discloses this is the case, but fails to explain the impact.

CWP-20

It is inaccurate that "single-tree selection simulates natural disturbance caused by the death of scattered trees." (DSEIS, p.3-8) What is the basis for this statement? What is the natural disturbance regime in this place?

CWP-21

We are less optimistic than you that single-tree selection will retain a perfect representation of old-growth stand structure. Damage to residual trees, and high-grading the best lumbering trees will change stand structure. Selective logging, particularly less intensive prescriptions, are very difficult to do with helicopters for economic and safety reasons. Many trees often have to be cut, beyond those marked, for "safety" considerations.

CWP-22

Partial harvest prescriptions will not leave Productive Old Growth in their wake, but a low-volume stand. It is untrue that for "uneven-aged prescriptions, the effects to POG will be less." (DSEIS, p.3-12)

CWP-23

OLD-GROWTH ECOSYSTEM

The DSEIS does a dangerous flip-flop. On the one hand it asserts that, "any project that is consistent with the Forest Plan...will, by definition, also provide reasonable assurance of maintaining viable wildlife populations." (p.3-9) But, in the very next breath the DSEIS discloses

CWP-24

Appendix D

the "exception" of a road and LTF "located in the beach fringe and old-growth reserve." Please don't hide behind rules you are breaking. The proposed action doesn't comply with the TLMP conservation strategy, and that strategy doesn't mitigate project impacts.

CWP-24
cont'd

The DSEIS inadequately considers impacts to habitat connectivity. (p.3-11) The project area is a "pinchpoint" for critters moving along the Cleveland Peninsula. Proposed logging, roading, the LTF and other infrastructure, and disturbance impacts will barricade wildlife movement. The DSEIS inaccurately says the project only barricades .75 miles, "leaving 4.25 miles in old-growth habitat reserves." (p.3-11) This ignores the impact of the road and LTF.

CWP-25

11% is an alarming portion of the productive old-growth to remove.

CWP-99

FISH

Please include maps with your analysis of Fisheries and watersheds in the FEIS. The narrative of sub-basins and watersheds is much less useful without this information. Environmental Impact Statements should stand on their own, not require constant cross-referencing with other reports to read.

CWP-26

What is the significance of your analysis showing fish habitat is "slightly above average" as compared against similar watersheds across the Cleveland Peninsula landscape? What is the basis for quantifying fish habitat this way? What is the annual escapement? What is the commercial value of project area salmon?

CWP-27

The DSEIS says, "logging and associated road building can affect fisheries resources by changing the delivery of water, sediment, and input of large wood debris into the stream system." (p.3-15) These are only a few of the many ways logging and roadbuilding impact fish habitat. Roads block fish passage. Construction requires in-stream operation of heavy machinery, which causes spills and crushes eggs. Food and nutrients from non-fish streams is lost. Stream temperatures and micro-climates change. Nutrients are less available. Fuel and other hazardous materials is spilled. Peak flows are bigger and faster. Large-woody debris is lost. Please consider all of these impacts.

CWP-28

What ARE the impacts to fish? Impacts are all stated as hypothetical, while mitigation measures are all stated in absolute terms. We appreciate that you are being defensive about admitting negative impacts, but it is in no-ones best interest that impacts are understated.

CWP-29

The statement, "measurable direct, indirect or cumulative effects to fisheries resources are not anticipated due to the implementation of the Forest Plan Standards and Guidelines," is nonsense. (DSEIS, p.3-16) A glance at the unit cards shows fish habitat will be directly and indirectly impacted by road crossings and logging. If these impacts aren't "measurable" that is only because nobody will measure them. According to this logic no timber sale ever would impact fisheries so long as it is consistent with the TLMP.

CWP-30

The DSEIS says, "removal of riparian vegetation through timber harvest can affect fish habitat and fish populations by increasing sediment inputs into streams, changing stream temperature and dissolved oxygen levels, changing the input of large woody debris, and altering the delivery of water to streams." (DSEIS, p.3-17) What are we to make of this list of hypothetical impacts? Clearly logging can hurt fish in these ways. Will it?

CWP-31

It is incorrect that "there would be no riparian area harvest in units along Class I, II or III stream under any alternative," excepting possible windthrow. (DSEIS, p.3-17) Road right-of-way clearing will harvest trees within stream buffers.

CWP-32

Riparian areas, and riparian management areas, are not identical. The former is an ecological term that varies from site to site, whereas RMAs are a fixed legal term. For example, vegetation along class IV streams is certainly riparian, if you are a mink or a marten or a bird or a bear. However, these areas are not designated as RMAs.

CWP-100

Thank you for disclosing that logging along non-fish streams will, inevitably, "introduce some sediment." (p.3-17) What is the impact of that? How much sediment?

CWP-33

Please give more careful consideration to impacts to class IV streams, and to cumulative effects on watersheds. After reviewing the unit cards, it is clear that a great many non-fish streams and wetlands will be extensively harvested, and downstream impacts are expected.

CWP-34

Appendix D

What are the cumulative effects to fisheries? The fisheries section ignores this issue entirely, although under Essential Fish Habitat is found the conclusory statement that, because of TLMP S&Gs, "measurable cumulative effects to fisheries resources are not anticipated." (p.3-19) As this is where the greatest impacts are likely to be found, please give more careful consideration in the FEIS. Why are cumulative effects to fisheries limited to the Wasta and Emerald Bay watersheds?

CWP-35

The DSEIS reasons that, "since the Emerald Bay sale occurs in distinct watersheds, separated by topographic features...cumulative effects to the fisheries resource are expected to be negligible." (p.3-19) Watersheds are, by definition, separated by topographic features. As this is universally true, how does it lead you to the conclusion that cumulative effects will be negligible?

CWP-36

Why hasn't consultation under the Magnuson-Stevens Fishery Conservation and Management Act been done? Protection of essential fish habitat needs to be taken more seriously.

CWP-37

LOG TRANSFER FACILITY & OTHER INFRASTRUCTURE

There are several good reasons not to build an LTF in Emerald Bay. The LTF site has high species diversity, according to the USFWS diver surveys in 2000. (p.3-19) It is located in TLMP conservation units, an old-growth reserve, beach-fringe and estuary buffer. Known eagle nests are immediately adjacent. It is wetland.

The DSEIS does not disclose a thorough consideration of possible LTF sites, except to say that one alternative site (where?) "was eliminated from further consideration for terrain or environmental reasons." Where was this location, and for what reasons was it dropped from consideration?

CWP-38

The DSEIS fails to disclose or consider the impacts of the camp, sortyard, maintenance yard, and other infrastructure. Loggers will have to live and recreate somewhere. Maintenance of machinery, particularly helicopters, will have to be done somewhere. There will need to be a log sortyard. These are necessary parts of every logging operation, and their impact must be considered.

CWP-39

It is unclear what your position is on the location of the log camp. What is the basis for the statement that "the camp would be located in the Timber Production LUD, well

CWP-40

away from saltwater and at the lower elevations above Emerald Creek." (3-26) What if the operator prefers a floating camp? What if they ask for an exception to your rule? If you know the camp will be upland, then why on earth not plan for it and disclose impacts?

CWP-40
cont.

The DSEIS seems to assume these features will be somewhere else, certainly not within the beach fringe or old-growth reserve. On its face these logistics seem difficult, or at the very least inconvenient and uneconomic. Where will construction crews sleep and stage their equipment during initial construction? You expect loggers to confine their recreation to the mountains because the lowlands are an "old-growth reserve?"

CWP-41

It will be difficult or impossible to have an upland sortyard, especially since the LTF will have limited utility at lower tides. (p.3-23) Loggers and longshoremen will have the unenviable task of racing to load a barge from a sortyard that is over a mile away, along a 14-foot wide road rated to 10mph!

CWP-42

There will also need to be some kind of maintenance area, particularly for helicopter logging. Foregoing maintenance would be a safety concern. This area will require a clearing and a pad. Fuel spills are inevitable.

CWP-43

The conclusion that there is a "slight risk of increased recreational hunting" is plainly incorrect. Is the fishing any good here? Is the hunting any good? Are you saying the odds are only slight that any of the loggers will go hunting or fishing? What on earth do you expect them to do?

CWP-44

It is incorrect that "there is currently little or no information to indicate that resource allocation problems have occurred as the result of a logging camp." (DSEIS, 3-25) Resource allocation problems have been evident at Icy Bay for years. The oilfield camp at Katalla in the mid 1980s caused such a blow to black bear populations that local guides reported a full decade of lost opportunity. It is naive, at best, to expect the Board of Fisheries and/or Game to control any problems here. This is not to say that loggers are any worse than anyone else about fish & game. But planting a small town in the middle of the wilderness will plainly increase use. Please disclose and consider these effects.

Appendix D

The section on "long-term accessibility" is confusing. Will the LTF provide long-term access, or not?

CWP-45

What is the basis of using the marine environment within 1-mile of the LTF for considering cumulative effects? A much larger area would seem to be warranted.

CWP-46

RECREATION

We value this area for its primitive recreation opportunities. The proposed action would severely degrade those opportunities at least through our lifetimes. There aren't very many truly wild places left in the world where a person can go. This is one of them. The DSEIS says, "the project area's roadless character has been unaltered by human activity, its natural integrity is intact, and opportunities for solitude are excellent." (DSEIS, p.3-28) The 2003 SEIS for Roadless Area Evaluation and Wilderness Recommendations ranked the Cleveland Area 12th among 109 Tongass Roadless Areas. It is surrounded by designated wilderness. The Cleveland Roadless Area is wilderness, call it whatever you want.

What is the basis for using the project area as the area considered for cumulative effects to recreation? Please evaluate a larger area.

CWP-47

Helicopters are a profound disturbance to primitive recreation opportunities.

The LTF will screw up the "outstanding saltwater fishing" in Emerald Bay. (DSEIS, p.3-39)

ROADLESS AREAS

Helicopter logging may technically leave an area still roadless, but it leaves a scar on the wild that takes a long time to heal.

It misses the point entirely to think that a road put into storage isn't a "road." This project will gouge a large area out of this roadless area.

CWP-48

DIRT

Please conserve soil productivity.

It is confusing that concerns about soils adjacent to units 1, 2, 5, 9, 11, and 12 are divided between the "soils" and "water" section."

CWP-49

The proposed action will have negative impacts in terms of displacing shallow soils. The DSEIS never discloses this impact. While it is clear that some areas of McGilvery soils within units have been "dropped," we induce that this actually means some area of McGilvery soils will be logged. (p.3-43, 3-54) Where? Based on our review of the unit cards, many of these areas are on steep slopes directly above fish streams. Please consider these impacts.

CWP-50

The proposed action is likely to cause erosion due to landslides. Harvest units include extensive high-risk, steep, shallow soils, that are directly above and could impact fish streams.

What are the cumulative effects to soils? A large percentage of this watershed is going to be harvested, and that is bound to have impacts on soil productivity and riparian areas. The overall impact of logging, yarding, roadbuilding, and landslides needs to be considered.

CWP-51

SUBSISTENCE

The proposed action would have too great impacts to subsistence. The analysis is overly reductionist and mechanistic. The simple fact is this timber sale will degrade subsistence opportunities.

CWP-101

The DSEIS concludes "no significant adverse effects" to wildlife species for three reasons, all of which are baseless:

"1. only about 8% of the project area (1 % of the WAA) would be harvested.

This percentage is a function only of the size of the area analyzed. Draw the lines differently, for example to exclude the beach to the north, and this percentage rises dramatically. Also, what is the basis for "only" 8%? What percent, exactly, constitutes a "significant adverse effect?"

CWP-52

2. Most (67%) of the project area and all of the lowest elevations have been designated as a medium OGR.

First, this sale severely degrades that OGR by building a road and LTF on it, and several years worth of intensive disturbance. Second, this figure also is just a function of some lines on a map. If the project area were limited only to the actual area where the project will happen, this percentage would change.

Appendix D

3. Forest Plan Standards and Guidelines would be implemented." (DSEIS, p.3-59)

This is untrue. Beach and estuary fringes are proposed for harvest and roadbuilding. The OGR will have over 14 acres covered in a linear mound of shotrock. Also, even if it were true, compliance with the TLMP does not, by itself, preclude significant adverse impacts to wildlife.

CWP-53

CRITTERS

STELLER SEA LION

Helicopters could have significant adverse impacts to sea lions, particularly the haulout on Easterly Island, and particularly if helicopters are delivering direct to the water.

CWP-54

QUEEN CHARLOTTE GOSHAWK

That the goshawk petition for listing under the ESA continues ought to tell you something. It ought to trigger a precautionary approach. Instead, this sale will intensively log a great deal of high-value goshawk habitat. The proposed action will have significant adverse effects to goshawks.

According to the DSEIS, goshawk surveys were only done in 15 locations nearly seven years ago. (p.3-64) That is insufficient. The fact those surveys didn't happen to find any goshawk nests doesn't mean very much. It is nearly impossible to locate a goshawk nest. A much more telling indication is the amount of potential goshawk habitat in the area. There is a great deal of it. The DSEIS implies there aren't goshawks here, which is misleading. The Cleveland Peninsula is an important subregion for viability of goshawks.

CWP-55

It is untrue that marten S&Gs (10-20% leave) "should result in better maintaining goshawk habitat." (DSEIS, p.3-66) Low-volume, open forests aren't goshawk habitat—at least, not a preferred habitat.

CWP-56

What is the basis for using VCU 7210 to evaluate percentage of goshawk habitat being removed? (Table TES-2) What is the significance of these percentages?

CWP-57

Nest buffers are a next-to useless mitigation against harm to goshawks. Do not rely on them.

CWP-58

What is the basis for using WAA 1817 to evaluate cumulative effects to goshawks? (p.3-67)

CWP-59

DEER

The deer habitat capability model is being misused. It is being used to show "action alternatives would decrease deer habitat capability by up to 1 percent." (DSEIS, p.3-82) This quantification is meaningless—it could just as easily be 10%, or 70%, depending on the size of the area examined. In this case, the model sample size is so large that all action alternatives show identical impacts to deer habitat, even though it is asserted that the uneven-aged prescriptions will have less impact. The model results are, in fact, useless for comparing alternatives.

CWP-60

The state area plan identifies this place as a "bio-geographical pinchpoint" for deer. The implication is that fragmentation should be a top consideration. The DSEIS concludes that deer movement won't be affected because "no harvest occurs at the lower elevation in the OGR, and all units retain some legacy trees." (p.3-82) The first assertion is plainly false, as there will be low elevation harvest, and roadbuilding, and an LTF, in the OGR. While leaving a few trees is probably better for deer than clearcuts, there is no scientific evidence to support the contention that it preserves connectivity. It certainly does not provide winter habitat, which is the most important limiting factor.

CWP-61

MARTEN

The marten habitat suitability index model is being misused in the same way as the deer model.

Even still, the results (Table Wildlife-5) show a 12% reduction in marten habitat capability across VCU 7210. That strikes us as very large. Clearly, the project will negatively impact marten.

CWP-62

BROWN BEAR

It is interesting that ADF&G, USF&WS, and the participants of a botany field trip in 2003 all noted important bear habitats, where the Forest Service found none. Why is this?

CWP-63

Is "a small portion of Unit 12...located within the brown bear foraging buffer..." (DSEIS, p.3-84) or not? Why should there be any uncertainty? If probable bear foraging areas are identified they should be protected, period.

CWP-64

Appendix D

The DSEIS says, "The grassy tide flats/estuary is an important foraging area in the spring when bears are foraging on grasses. This lower section is protected by the Beach/Estuary LUD designation." (p.3-84) As noted above, this project proposes very intrusive actions along the beach.

MOUNTAIN GOAT

Proposed action has unacceptable impacts to mountain goats. All the harvest units are classified as either escape terrain or high use areas.

CWP-102

It should be a strong warning that goat hunting is already closed by ADF&G "due to over-hunting and potential extirpation concerns." (DSEIS, p.3-84) What are the cumulative impacts of the proposed action, given past and current problems? What is the current goat population? Where is it?

CWP-65

What is the basis of your definition of escape terrain as slopes over 50%?

CWP-66

What is the basis for using VCU 7210 to quantify goat habitat impacts by gross percentages?

CWP-67

Helicopters in particular will have unacceptable impacts to goats. The DSEIS does recognize that disturbance will displace goats, but only in the context that the disturbance will allegedly protect goats from potential hunters. (DSEIS, p.3-85) The TLMP requirement for 1,500 foot buffers during helicopter logging is also mentioned, along with the statement this "may help reduce displacement." (p.3-85) What displacement? Where are kidding areas? Please consider the very negative impacts of disturbance to goats.

CWP-68

Disturbance will negatively impact goats. Combined with past overhunting, illegal harvest, and loss of winter habitat, cumulative impacts will be great. Loss of high-value winter habitat and fragmentation impacts are especially severe.

What is the basis and implication of the statement, "goats would be expected to use escape terrain in the fall?" (p.3-85) Goats generally use escape terrain year-round, though perhaps less during winter.

CWP-69

BALD EAGLE

Please do not build roads and LTFs and camps, and clearcut forests, within 330 feet of bald eagle nests. The federal government ought to be expected to obey its own laws.

CWP-70

Why do you feel so comfortable assuming that USF&WS will issue a variance to allow the road and LTF and repeated helicopter over flights within bald eagle nest buffers? At the point you ask for one it will be, practically speaking, too late for them to say no.

WOLF

This project will have negative impacts to wolves. Loss of prey (deer, goats) is part of the problem, but not all. Roads, and the logging operation, will increase hunting pressure on wolves.

CWP-71

Roads, including closed roads, will impact wolves by altering predator-prey dynamics and hunting success. Please consider this impact.

BROWN CREEPER, HAIRY WOODPECKER, RED SQUIRREL, RED-BREASTED SAPSUCKER

Thank you for including some snag-dependent species as MIS for analysis. It is disappointing, however, that so little analysis is given to potential effects. What impact will the various harvest prescriptions have on availability of snag habitat? The DSEIS says "snag habitat should not be a limiting factor in the project area as there has been no previous harvest." Clearly, even a single entry could be sufficient to do serious damage to snag habitat. Just pointing out that it's a big world with a lot of dead trees in it doesn't inform our decision. The proposed action will dramatically diminish available snag habitat for centuries to come. Please consider this impact.

CWP-72

RED-TAILED HAWK

Unit 10 should be dropped to protect the red-tailed hawk nest. The TLMP only *allows* you to drop nest protections if two years consecutive surveys don't show occupancy. We see no good reason to do so. At the very least, please justify this dangerous decision.

CWP-73

WATER

Why does the "project area shoreline exclude the entire estuary." (p.3-73)

CWP-74

Appendix D

The unmapped tall sedge fen downslope of unit 11 is not noted on the unit card. Apparently no effort has been made to mitigate effects. In fact, there are several streams in this clearcut unit.

CWP-74
cont.

The proposed action has way too much impact to wetland. Over 400 acres will be logged, and at least four miles of road built over wetland. No effort appears to have been made to avoid logging wetlands. 71% of the project area is mapped as wetland. An even larger percentage of the cutting units and roads are wetland.

The section on "windthrow potential in riparian areas" (p.3-75) is unclear. You expect stream buffers along 1.5 miles of streams to blow down? What is the basis for 5% being the "worst case" scenario?

CWP-75

What are expected impacts to wetland function? The two sentences on page 3-75 don't disclose any effect. How long and how significant is "temporary" effect. What impact will the road have on wetland function?

CWP-76

The proposed action will have negative, indirect impacts in terms of wetlands. Obviously, watersheds and wetland complexes are interrelated. Hydrologic, micro-climate, and vegetative changes in one place have corresponding impacts downstream. Please consider these impacts in the Final.

CWP-77

HELICOPTERS

The DSEIS fails to adequately consider the unique impacts and challenges of helicopter logging. Damage to residual trees in partial-cut units, fuel and hazardous material spills, disturbance (especially to goats, birds, and primitive recreationists), added infrastructure requirements (especially for maintenance), and unique constraints on selective logging of steep slopes are ignored in the DSEIS. These impacts will be severe and negative, and must be considered.

CWP-78

UNIT CARDS

While we sympathize with your apparent effort to cut down on costs for the EIS, the unit card maps are very difficult to read. I hope your foresters and biologists and other crew in the field have better data than this to base their decisions on.

CWP-79

Units marked in solid black hide any streams or other features within the unit.

The road card maps are all messed up. Contour lines don't connect, streams are missing, and who-knows what else. There are many major discrepancies in the location of streams and other features between the unit cards and road cards. Apparently either the roads or the units are being designed based on inaccurate maps. The public cannot meaningfully evaluate the impacts of these roads and units, without readable and reasonably accurate maps.

CWP-80

Several of the roads shown on unit cards (e.g. unit 1) don't have road cards, and aren't shown on those maps. Are these roads included in the EIS narrative and other tables?

CWP-81

UNIT 1

Shovel yarding is not appropriate on these forested wetlands. BMPs are a given, but even when followed typically result in damage.

Where is unit 1a and 1b? These are not identified on the map, and so it is impossible to tell what logging systems are being applied where.

CWP-82

Why does the map show the unit intruding on the windfirm buffer?

CWP-83

Impacts to the HC5 stream in the west side of the unit will be severe, especially with a road crossing just upstream. It is not apparent how split yarding could be accomplished for that part of the unit stranded on the west side of the stream. It would be a reasonable alternative to remove this portion of the unit.

CWP-84

Impacts to the HC5 stream running through the center of the unit will be even more severe, as it will also be crossed by four different roads. This plainly has potential to impact Emerald Creek, in particular by delivering sediment and preventing downstream transfer of nutrients. This stream does not appear to be noted in the unit card.

CWP-85

It would be useful to leave some large cedars for snag habitat.

CWP-103

Where will the loading decks be?

CWP-86

The lower spur road appears to run through the windfirm buffer of Emerald Creek.

Appendix D

UNIT 3

Impacts to the lake are an obvious concern for the northwest portion of the unit. What are the wildlife values of this lake? The map shows cutting on the steep slope above the lake, and within the riparian area. As "mitigation" for landslide prone soils, it appears this area will be a leave island. A leave island at the edge of a unit is the same thing as a unit boundary. By this standard clearcuts could always be called partial cuts, just by moving boundaries on a map.

CWP-87

UNIT 5

Why not drop the steep forested wetland in the southwest portion of this unit?

The map shows the unit intruding on the HC5 stream buffer to the east, and cutting in wetlands at its headwaters. This portion of the unit is unnecessarily destructive. Please drop it.

CWP-88

UNIT 9

This unit would clearcut steep wetlands above Emerald Creek. The tall sedge fen and alluvial fan should be protected by dropping this unit.

CWP-89

How is it there are .02 acres of high value marten habitat? Why does this have to be clearcut?

UNIT 10

High-hazard soils, streams within and adjacent to the unit, probable high-value goat winter habitat, wetlands, and an identified red-tailed hawk nest are all good reasons to drop this unit.

CWP-90

If the hawk nest is still occupied, helicopter yarding will likely result in abandonment. Do not chase hawks away, so their nest trees can be logged.

UNIT 11

This unit will create an exceedingly large clearcut. Combined with unit 1 it will functionally be one, massive opening.

This unit will have unacceptable impacts to streams. The stream running through the center of the unit can't be buffered because the road crosses it. Several branches shown on the map aren't discussed in the unit card. There are major discrepancies between the fisheries/hydrology

CWP-91

section of the unit cards between alternatives. Steep, erosion-prone soils are proposed for clearcut.

UNIT 12

It is unclear why this massive, sprawling mess of prescriptions is named as a single unit. Any reason?

CWP-92

The road will connect the opening created by this unit, with that created by unit 1 (which in turn connects to unit 11), resulting in a mammoth clearcut.

CWP-104

The western portion of this unit seems unnecessarily degrading to the salmon stream, especially with the class IV HC5 (shouldn't that be a class III?) running through the center of the clearcut, and being crossed by the road. This small stream appears to be neglected in the unit card.

CWP-93

Thank you for thoughtfully considering these comments.

Please send us a hardcopy of the Final when it is completed.

Sincerely,



Gabriel Scott
Alaska Field Representative
Cascadia Wildlands Project

Appendix D

Forest Service Response to Cascadia Wildlands Project:

CWP-1:

The SEIS was prepared through a contract with TEAMS Enterprise (comprised of Forest Service personnel), with the lead contact located in South Dakota. The Ketchikan District personnel were involved with review and field reconnaissance. The Final SEIS contains additional analysis, which was completed by District personnel. The Responsible Official is the Tongass Forest Supervisor, and a local information contact was disclosed in the Draft SEIS. The final decision for the Emerald Bay Timber Sale will be made on the best information available after considering all public and agency comments received during the planning process.

CWP-2:

Chapter 3 discloses the environmental consequences of the Proposed Action and alternatives resource by resource. Mitigation measures are important to demonstrate the efforts made to minimize the effects, and how the effects are minimized by the implementation of Forest Plan direction. Effects are quantified where possible, and qualitative discussions are also included. Additional efforts were made in the Final SEIS to clarify effects discussions in Chapter 3.

CWP-3:

The Final SEIS has been updated with improvements to existing maps as well as providing additional maps for issue clarification.

CWP-94:

This project is a component of the Tongass Timber program. The demand for this program, based on installed mill capacity in Southeast Alaska, is 151 MMBF. There are approximately 14 primary timber purchasers in Southeast Alaska. Several mills are in the southern part of the Tongass and the District often gets request for timber to be made available. Some requests are for specialty products. Other sources of wood are available through State or private landowners, but they do not appear to be filling the timber need based on the requests receive at the District.

CWP-4:

The area considered for cumulative effects analysis varies by resource (Chapter 3). Some areas of cumulative effects analysis may be reasonably considered at the VCU 7210. Resource analysis considered the past, present, and reasonably foreseeable actions within that resource area of consideration.

CWP-5:

Reasonable foreseeable actions are those that have site-specific activities proposed. Pre-commercial thinning might be proposed at a future date, depending on which alternative is selected, but that is unknown at this time. Thinning may not be necessary, depending on the stocking of the stands. The stands will be evaluated when thinning might occur, about 15-20 years after harvest. Future entries for the uneven-aged stands have been prescribed, but may need future evaluation at that time.

CWP-6:

Timber market demand is done annually on a Forest-wide scale. This project is one component of many sales across the Tongass planned to meet that demand. The analysis in this SEIS is focused on the issues associated with this project, not with Forest-wide issues. Appendix A of the document provides an explanation of the rationale for the timber harvest project and its importance to the multi-year timber program at regional and local levels.

CWP-7:

The Preferred Alternative is based on the analysis of effects on the issues and other resources, not on volume. The harvest volume that each alternative would contribute to the regional supply is disclosed in Chapter 2, Tables 2-1, 2-2, and the "Timber Economics" section of Chapter 3. Appendix A of the document discloses additional information regarding regional supply and demand, and Emerald Bay's potential contribution to regional supply of harvest volume.

CWP-95:

Chapter 3 explains that the financial efficiency analysis assumes that western redcedar will be processed locally and Alaska yellow-cedar will be exported. It is up to the timber purchaser whether to request a permit to export Alaska yellow-cedar or whether it will be processed locally. In recent years, about 25 percent of the yellow-cedar has been processed locally. Whether a permit is granted depends on the demand for processing the product locally. Smaller material may lack a demand for local processing that may make it available for export.

CWP-8:

Effects to non-timber harvest values have been considered in Chapter 3. These non-commodity elements are not factored into the NEAT program. They have been considered in qualitative terms and the effects on these resources are listed under the appropriate resource sections in Chapter 3. There are no expected significant impacts on resources such as hunting, fishing, recreation, or tourism.

CWP-9:

The Transportation section has been updated in the Final SEIS. The long-term effects are discussed fully and the conclusion is that the effects will be minimal since the road system will be closed to public motorized use and allowed to return to a more natural state. The effects of the roads constructed in Alternatives B and D are also considered in terms of other resources in the "Transportation" section of Chapter 3.

Since the LTF will be removed and structures placed at the beginning of the road, the road system will be inaccessible to motorized vehicles. The lack of motorized vehicles will allow a more rapid revegetation of the road surface, which will allow the resumption of animal movement and restore the natural appearance.

CWP-96:

"Obliteration" is no longer being used to describe the measures taken to restore the road to a more natural state. Although complete obliteration cannot be achieved, natural processes will be resumed to a large extent. The "Transportation" section mentions that roads will be placed in storage, and describes the measures used in road storage. The "Scenery" and "Marine" sections in Chapter 3 describe the visual effects of the LTF and associated road system under Alternatives B and D.

CWP-10:

The VCU 7210 RAP and the South Cleveland RAP were used during transportation planning for the Emerald Bay Timber Sale. Transportation planning used this information to help make an informed decision on travel management. No additional planned roads were identified in these RAPs. The Emerald Bay analysis also incorporates the Tongass Forest-wide RAP completed in January 2003. The cumulative effects for this project were considered for the Cleveland Roadless Area #528 and are discussed in the Transportation section and Cleveland Roadless Area section of Chapter 3.

CWP-11:

A "low-impact" road is a classified road built to minimal road construction standards appropriate for this project area. It will create less impact to streams (using log-stringer bridges instead of culverts, narrower road surface and clearing width). The roadbed is outsloped, and the narrower clearing width would facilitate more rapid recovery to a natural condition. This is discussed in "Transportation" section of Chapter 3. Roads of similar construction have been used on the Tongass where limited use of a road is anticipated.

In a comparison between a 16-foot and 14-foot road: The 14-foot road would save about 800 cubic yards of fill material per mile and about a quarter of an acre of roadside clearing per mile. The cost savings would be about \$700 per mile.

CWP-12:

Roads in Alternatives B and D would be closed to public motorized traffic by special closure order during the timber sale contract and placed in storage afterwards, eliminating motorized vehicle use of the road. The timber sale purchaser would be responsible for safety, which would be achieved through driver/load coordination and radio communication.

CWP-13:

The calculations for acres affected by road construction included a 55-foot clearing width for the whole length of the road. The 55-foot width would include all construction features. The actual cleared width would be less in most cases. In Alternative B, there would be a total of 41 acres affected by road construction, while in Alternative C, there would be a total of 25 acres affected by road construction. Under both alternatives, 14 acres would be lost to road in the Old-growth Reserve (as discussed on 3-12 of the Draft SEIS). Turnouts, pullouts, and parking areas all were assumed to be within the 55-foot clearing width of the road so additional deductions are not necessary for these items.

CWP-14:

Edge effects can be found along natural (i.e. meadow/forest) or man-made (i.e. clearcuts and roads) edges. This is based primarily on definable differences in micro climate. Interior old growth tends to have different characteristics than old-growth forest at edges, due to light interception by surrounding trees, buffering from the effects of wind, and the general absence of transitional plant species (Forest Plan, 3-24).

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Some plant and animal species are associated with “edge” environments, and creation of edges allows movements into new areas. Construction of a road (a linear feature, as opposed to edge created around a clearcut) results in an area of edge effect on both sides of the road clearing.

Effects of the road in the OGR are discussed in the “Biodiversity” section of Chapter 3. The effects of the road on individual wildlife species are discussed in the “Wildlife” and “Threatened, Endangered and Sensitive Species” sections of Chapter 3 of the Chapter 3 as well as in Appendix B.

There is essentially no difference in the terms “removing trees” and “timber harvest” in the case of road right-of-way clearing. The trees of commercial size within the road clearing limits would be cut and removed.

CWP-97:

The proposed road will meet Forest Plan Standards and Guidelines and BMPs in terms of minimizing surface erosion to the road. The road will be outsloped to vegetative buffers, thereby reducing the potential for channelization of the road. Outsloping will place any minimal sediments in vegetative buffer, reducing the potential for sediments to enter a water system.

CWP-15:

The cost of road maintenance was considered in Alternatives B and D. During harvest operations, road maintenance would be the responsibility of the timber purchaser. After harvest and clean-up operations are complete, the roads would be placed in storage, and no maintenance would be needed. This would allow maintenance dollars to be spent on roads that are actively being used by the public elsewhere.

CWP-16:

The basis for using VCU 7210 (the project area) as the cumulative effects analysis area is discussed in the “Transportation” section of Chapter 3. This is the first roading entry into this VCU and all proposed roads are within the VCU. There are no existing roads in this VCU or adjacent VCUs whose effects have the potential to reach this area. There are no proposed future roads at this time.

CWP-17:

Because of the size of the streams, the log-stringer bridges require no in-stream structures and stream channelization is not planned. Stream crossings were selected to minimize construction along stream banks.

The log-stringer bridges would be removed upon harvest completion after approximately three operating seasons, which should decrease the likelihood that bridges would wash out during periods of heavy precipitation and/or snow melt. The log-stringer bridges would be designed to provide passage of a 50-year high water flow event.

CWP-18:

The mapped wetlands were found to include non-wetland areas during on-the-ground surveys. The figure “60 percent of the road is on wetlands” is based on field reconnaissance. The unit and road cards will be updated to better represent the exact road location in relation to the wetlands. Three rock pits would be developed – one would likely be located on wetland, the other two are in non-wetland areas. None are located on high-value wetland areas.

Alternatives B and D’s descriptions in Chapter 2 discuss road and LTF closure methods. OHV use of the closed road would be eliminated through the removal of the LTF and a variety of road closure measures, as described in the “Transportation” section in Chapter 3 of the Final SEIS.

CWP-19:

The stream symbol on the road card map is merely covered by the symbol and label used for the road section. The width of the road is not to scale on the road card map.

CWP-98

The “Silviculture” section in Chapter 3 displays the stand attributes that would remain after harvest. The stand composition and average DBH of the trees would be close to the existing condition but would have a reduction in total basal area. The “Biodiversity” section of Chapter 3 discusses the changes to POG as a result of the action alternatives. It states that the treated areas would no longer be counted as POG. As regeneration occurs in areas where trees have been removed, the stand structure will become multiple storied and move toward an old-growth condition in the future.

CWP-20:

High grading is not part of the Proposed Action or any alternative. Post treatment and existing stand composition is displayed in the “Silvicultural” section of Chapter 3 and the stand prescriptions located in the project record. Post-treatment stand composition of cedar is expected to increase in Alternatives B, C, and D.

CWP-21:

The basis for this statement is found in the Forest Plan FEIS (G-14). Regeneration occurs under the partial shade of larger trees, and seedlings must be able to grow in a shaded environment. Sitka spruce and western hemlock are adapted to grow in shaded environments. Under the selection method, the stand always has some relatively old trees.

A summary of the disturbance regimes on the Tongass is found in the Forest Plan FEIS (3-18). Sporadic, low- to moderate-severity disturbances are an integral part of the interior dynamics of old-growth forests. Wind is the most common disturbance element in Southeast Alaska, and canopy openings resulting from the death of overstory trees often give rise to patches of small trees, shrubs and herbs in the understory.

For more information on natural disturbance regimes, see “The Effects of Wind Disturbance on Temperate Rain Forest Structure and Dynamics of Southeast Alaska” (PNW-GTR-421, Nowacki and Kramer, 1998).

CWP-22:

Single-tree and group selection would not retain a “perfect representation” of old-growth stand structure. After selection harvests, stands maintain forested appearance, as stated in the “Silviculture” and “Biodiversity” sections of Chapter 3.

Advantages and disadvantages of the single-tree selection method are displayed on G-14 of the Forest Plan FEIS.

CWP-23:

The Forest Plan has defined old growth as “unproductive” or “productive”. Productive old growth is further categorized into three volume strata (low, medium, or high) (Forest Plan FEIS pages 3-19 and 3-20). These categories are defined by timber volume and soils. Partial-harvest systems would move stands into a lower-volume class of productive old growth, depending on the residual stand. These stands would grow back into the highest volume strata that the site will allow. Unproductive old growth is based on limitations of the site, such as soil productivity, and would never become productive old growth.

CWP-24:

The proposed road in Alternatives B and D that partially goes through the OGR is consistent with the Forest Plan. The Forest Plan has an objective in the Old-growth LUD that states “to the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives” (page 3-75). Roads would be constructed outside the beach and estuary fringe where possible (Emerald Bay Draft SEIS page 2-3).

There are two alternatives that would build no road through the Old-growth LUD – Alternative A (No Action) and Alternative C. An alternative that looked at access from the Wrangell Ranger District was considered, but was dropped due to steep, rugged slopes that precluded a reasonable road connection from the north (Draft SEIS page 2-11).

The roads and LTF proposed in Alternatives B and D would be constructed and closed or decommissioned to minimize impacts as described in the SEIS.

CWP-25:

Connectivity analysis is recommended to be done at the landscape level (Forest Plan, p. 4-120); however, it was addressed for this project to consider effects on a “pinchpoint” across the peninsula. Habitat connectivity is discussed in the “Wildlife” and “Biodiversity” sections of Chapter 3. Additional information on the effects of the project alternatives and wildlife movements is discussed for individual species in the “Wildlife” section of Chapter 3.

The road and LTF are not ignored. The “Biodiversity” section refers to the 5-mile west-east distance between Emerald Bay and Spacious Bay; only about .75 miles are in the Timber LUD. The rest of the length is in non-development LUDs. Retention of current stand structures across a minimum of 85 percent of the distance should not have a major effect on movements across the “pinch point” on the peninsula. The “Marine” and “Transportation” sections include further discussion on the effects of roads.

CWP-99

Table Old Growth-3 in the “Biodiversity” section of Chapter 3 displays the existing productive old growth and the relative change by alternative for the VCU 7210 (project area). Seventy-four percent of the POG within the project area resides in

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the Old-growth LUD and is not scheduled for harvest. Table Old Growth-4 displays the relative change in POG over the cumulative effects area (WAA 1817). The relative change in POG is very small at the WAA level.

CWP-26:

A map has been included in Chapter 3, "Fisheries" section that shows the watershed and sub-basins.

CWP-27:

See the "Fisheries" section of Chapter 3. All Class I, II, and III streams adjacent to units or crossed by roads were field surveyed by fisheries personnel. After the GIS data was updated with the field survey information, fish habitat was analyzed and compared to other similar-sized watersheds across the Cleveland Peninsula. Analysis included both habitat availability (miles of stream) and habitat capability (ability to produce smolts) based on channel types and process groups. Additionally, Emerald Bay was divided into sub-basins and analyzed in terms of sediment transport and storage capability. Field survey information and analysis results were used to identify and protect sensitive species. Annual escapement and commercial value is not tracked by ADF&G on an individual watershed basis, and the value of the project area salmon is unknown.

CWP-28:

Standards, guidelines, and timing restrictions prevent instream construction during the time eggs are in the gravel or fish are present (Class I and II streams). In addition, log-stringer bridges would be used instead of culverts to cross all fish streams and Class III water-quality streams. By using log-stringer bridges, the need for instream construction is very limited. All roads will be decommissioned at the end of the sale and log-stringer bridges removed. Forest Plan Standard and Guideline buffers would protect all Class I, II, and III streams.

CWP-29:

Measurable impacts are not anticipated ("Fisheries" section of Chapter 3). Standards and Guidelines were designed using the best available science and meet or exceed Anadromous Fish Habitat Assessment (AFHA) recommendations. BMPs are incorporated to protect water quality on Class IV streams. As a result of the ground surveys conducted by fisheries personnel, areas with high risk were identified in the field and avoided.

CWP-30:

See response to CWP-29. "Measurable" means that any change would not be noticeable, quantifiable, mapable, or outside the direction of the Forest Plan or BMPs. Unforeseen events such as landslides are possible; however, the soil scientist field surveyed all units and road proposals with steep slopes or mass movement potential. His recommendations were incorporated into unit design to minimize this potential.

CWP-31:

Through unit design, the application of Forest Plan Standards and Guidelines, and Best Management Practices (directional felling, suspension requirements, and windfirm buffers) adverse impacts on fisheries are not anticipated. Minor amounts of sediment may be introduced as the result of timber harvest and road construction. Unforeseen events could change the potential for impacts to fisheries.

CWP-32:

There would be no harvest in the riparian buffers other than where roads cross streams. Roads were routed and located to minimize the number of crossings ("Fisheries" section, Chapter 3)). The low-impact road would have a 55-foot wide clearing limit. Information on individual stream crossings is displayed on the road cards (see Draft SEIS Appendix E).

CWP-100

"Riparian areas" is an ecological term. The term RMA is used in the Forest Plan to indicate those areas that need to be managed as riparian. Class IV streams are defined as "Other intermittent, ephemeral and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hill slope." Areas adjacent to Class IV streams often do not have riparian vegetation or characteristics associated with riparian ecosystems. All streams will be field verified during implementation.

CWP-33:

Amounts and impacts of sediment would be minimal through the implementation of BMPs. Class III streams would be buffered. Class IV streams would be protected by directional felling, split yarding, and/or partial or full suspension. These streams do not have sufficient flow or sediment transport capability to affect downstream fisheries.

CWP-34:

See the response to CWP-33 for discussion of Class IV streams.

CWP-35:

Cumulative impacts would be similar to direct project impacts (“Fisheries” section Chapter 3). Wasta and Emerald Bay watersheds are the only watersheds where project activities occur. The remainder of the Wasta watershed and adjacent watersheds have no past or reasonable foreseeable future activities occurring that will affect the project area watersheds. See discussion on “Cumulative Effects” and “Reasonably Foreseeable Future Actions” on page 3-19 of the Draft SEIS.

CWP-36:

See the response to CWP-35. Cumulative effects for water quality and fish habitat are generally done by watershed since they are distinct geographic features and the activities in one watershed do not affect the adjacent watershed functions.

CWP-37:

The Draft SEIS was provided to NMFS and they were contacted on October 17, 2003. Concurrence on EHF findings was received from NMFS on December 18, 2003.

CWP-38:

The “Marine” section of Chapter 3 discusses the rationale for selection of LTF sites. Additional information about the LTF locations is in the Emerald Bay LTF Reconnaissance Report in the project file. An interagency team comprised of USFWS, ADF&G, and USFS personnel evaluated 2 miles of shoreline near Emerald Bay. Six potential sites were evaluated and the best overall site was selected. Site selection was based on the presence of steep uplands limiting access to LTF locations, bathymetry (water either too steep or too shallow, presence of reefs), anticipated LTF cost, and the Alaska Siting Guidelines.

CWP-39:

The “Marine”, “Biodiversity”, “TES”, and “Wildlife” sections of Chapter 3 disclose the anticipated effects from camps and log sorting areas by alternative. Alternatives B and D propose camp and log sorting facilities close to the LTF. Fuel storage is covered by the timber sale contract and must meet EPA standards.

Alternative C proposes logs being flown directly to a floating barge and a floating camp for operators. Under Alternative C, a helicopter service landing would be located on a barge. Fuel storage would be covered under U.S. Coast Guard regulations.

CWP-40:

For Alternatives B and D, the logging camp is now proposed as part of the facility with the sortyard and maintenance shop. This camp would be temporary and consist of the minimum acreage necessary, unlike larger logging camps that are used long term for many sales over a large area. Any vehicles and the associated needed fuel will have to be barged in which would limit the number in camp. See response to comment CWP-39.

CWP-41:

For Alternatives B and D, the sortyard is now proposed to be located next to the LTF for the reasons that you outline. The effects of this have been analyzed in the Final SEIS. See response to comment CWP-39. The Forest Service and the timber purchaser would agree upon the exact location of the log sortyard.

CWP-42:

See response to comment CWP-39.

CWP-43:

The “Wildlife” section of Chapter 3 acknowledges that hunting would increase when harvest activities are occurring. Hunting is less likely to increase under Alternative C, which does not provide roaded access to the interior of the project area.

An average of 24 deer/year were harvested from the entire WAA from 1987-1994; reported harvest from 1996 to present averages less than 7 deer/year. Emerald Bay comprises approximately 10 percent of the WAA, therefore, although impacts in the Emerald Bay area may increase, they would be of short-term duration and only impact a minor portion of the WAA. Loggers, construction workers, and other hunters and fishermen are required to comply with State and Federal hunting and fishing regulations. Law enforcement personnel would deal with any violations.

CWP-44:

Comparisons cannot be made from a long-term, sustained operation like Icy Bay to the short-term, limited proposal at Emerald Bay. Chapter 3 discloses that competition for wildlife, fish and marine resources would likely increase, but that it would be temporary, and limited enough in scope that no adverse consequences to the resources would occur. See response to CWP-45 about the short-term duration of impact to Emerald Bay and law enforcement.

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CWP-45:

This has been clarified in the Final SEIS. For Alternatives B and D, the LTF is being designed for a single entry ("Marine" section, Chapter 3) and would be removed after the harvest and clean up has been completed. No LTF will be constructed for Alternative C.

CWP-46:

See the rationale listed in the "Marine" section of Chapter 3. Effects of actions outside of this area are not anticipated to reach this area.

CWP-47:

Recreational activities adjacent to the project area boundary would not be affected by activities that are occurring in the Emerald Bay project area. Most of the recreational use occurs along shorelines on the south and east sides of the Cleveland Peninsula, away from the project area. Some recreational use occurs in the Vixen and Union Bays 3 miles to the southwest of the project area. Most of the recreational use could be characterized as "transient" people boating by to reach some other destination of interest. Inland use of the Cleveland Peninsula is very minor and is even more unlikely in the project area due to the lack of a good anchorage for small boats.

CWP-48:

Impacts to the roadless area from helicopter logging are discussed in the "Cleveland Roadless Area" section in Chapter 3. As documented in Appendix C of the Forest Plan FSEIS Roadless Area Evaluation, older units harvested by beach logging and helicopter logging do not detract from the roadless characteristics, since these units are determined to be mostly naturally appearing (USDA Forest Service 2003, p C1-2). Part of this determination was made due to the fact that helicopter units are usually partially harvested and many smaller trees also remain. Because of this, they would retain a forested, natural appearance after harvest is completed. This analysis assumes that the proposed single-tree and group-selection harvest methods would meet this criteria and retain their roadless characteristics.

The "Cleveland Roadless Area" section in Chapter 3 acknowledges that the alternatives that propose new road construction will have an adverse effect on the roadless characteristics. Alternative B would reduce the areas roadless characteristics by 2,878 acres or about 1.5 percent. Alternative C would reduce the area's roadless characteristics by 1,128 acres or about 0.6 percent. These losses of roadless area characteristics are very small compared to the entire Cleveland roadless area. Furthermore, the loss of these acres would be in an inland portion of the roadless area that gets minimal use by the public (See "Recreation" and "Cleveland Roadless Area" sections of Chapter 3.)

CWP-49:

The "Soils and Geology" section in Chapter 3 of the SEIS refers the reader to the "Water" section, in regard to forested, poorly drained organic soils adjacent to harvest units and wetlands. The "Soils" section concentrates on soil productivity, erosion, and mass wasting. Wetlands are only discussed in-depth in the "Water" section of the document.

The "Water" section of the document mentions the types of soils that wetlands occur on, and mitigation measures to protect wetland values.

CWP-50:

McGilvery soils can be safely logged if minimum partial suspension is used (Forest Plan p. 4-84). McGilvery soil areas were identified during unit reconnaissance. Where soil displacement was likely to exceed Region 10 Soil Quality Standards (based on past monitoring results, Landwehr, 1997 unpub.) the areas of McGilvery soil were not included in the harvest unit. Small areas of McGilvery soils are included in the helicopter-logged, partial-cut portion of Unit 3. Full suspension would be achieved on all helicopter-logging units. For these reasons, adverse effects are not anticipated when logging on these soils.

CWP-51:

The "Soils and Geology" section of Chapter 3 discusses effects on soil from timber harvest and roadbuilding. It also discusses the potential for landslides. Percent disturbance would be smaller at the watershed level than at the unit level used for direct effects. The intent of the Regional Soil Quality Standards is to maintain soil productivity within acceptable standards. A sediment risk analysis was completed on each watershed within the Emerald Bay project area (Geier 1998). The results are discussed in Chapter 3, "Fisheries Resources".

Helicopter yarding would be required to harvest the partial-cut harvest units. Steep slopes prone to landslide potential have been avoided through unit design or have been ground truthed and determined to be stable enough for timber harvest. The partial harvest prescriptions and the use of helicopter yarding for the steeper slopes will minimize soil displacement and other adverse effects.

CWP-101:

Few subsistence activities currently occur where the timber harvest activities are proposed. Most occur along the shoreline, which would be temporarily affected during the time when timber harvest activities would take place. The road proposed in Alternatives B and D would provide walk-in access to the interior of the area. Effects to the current subsistence use would be minor.

The “Subsistence” section of Chapter 3 discusses the potential effects to subsistence use of the project area. Although subsistence harvest in the project area is important to residents of Meyers Chuck, review of collected data shows that overall use of the project area is minimal. See response to comment CWP-43. The rationale for determining “significance” of effects, as related to subsistence, is discussed in the Subsistence section of Chapter 3 under the paragraphs titled “Competition” and “Cumulative Effects.”

CWP-52:

Percentages would vary by different analysis areas. The effects are displayed at two scales (project area/VCU and Wildlife Analysis Area) to look at effects at different scales. Value Comparison Units (VCUs) were used to analyze effects for many of the species. VCUs were established during Forest Planning, and are distinct geographic areas that generally encompass a drainage basin containing one or more large stream systems. The units were established to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made (Forest Plan Glossary page 7-47). WAAs are a division of land used by the Alaska Department of Fish and Game for wildlife analysis. They are larger than the VCUs and are used for cumulative effects analysis for species with larger home ranges (see “Wildlife” section, Chapter 3).

General effects on habitats, effects from the LTF, rock pits, camp, and sortyard are addressed in the “Biodiversity”, “Wildlife”, and “TES” sections of Chapter 3 and the Biological Evaluation (Appendix B). The effects of harvesting under the different alternatives are also addressed by species, as different species are affected by different changes in habitat components.

See response to comment CWP-99 concerning changes to POG. The “Biodiversity” section of Chapter 3 discusses the anticipated effects of a road, LTF and sortyard being placed in the medium OGR. Chapter 2 discusses options that were considered to avoid the placement of the road, sortyard and LTF at the location proposed in the EIS.

CWP-53:

See the responses to comments CWP-25 and CWP-52.

The statement in the Draft SEIS is correct. Forest Plan Standards and Guidelines allow roads to access LTFs in beach and estuary buffers. No timber harvest units are proposed within these areas. In addition, Forest Plan Standards and Guidelines allow for road construction through OGRs if other alternatives are not feasible (see Forest Plan, page 3-75).

Approximately 23 acres in the OGR would be affected by road clearing, rock pits, and sortyard under Alternatives B and D based on an estimated 55-foot clearing width for the 2.2 miles of road and 2 rock pits. The 55-foot width would include all construction features. The actual cleared width would be less in most cases. See also response to comment CWP-13. The loss of habitat from edge effect is displayed in the “Biodiversity” section of Chapter 3.

Wildlife species on the Tongass are usually analyzed by their respective habitats and using models as a comparison tool. The Forest Plan Standards and Guidelines for wildlife were designed to maintain habitat capability and therefore sustain viable populations over the long term. The Standards and Guidelines are used in combination with habitat evaluations to analyze project effects and design mitigation (Forest Plan FEIS p. 2-5). Forest-wide effects were analyzed for the Forest Plan and Forest Plan SEIS.

CWP-54:

Adverse impacts to the Steller sea lion are not anticipated. Information about potential effects on this species can be found in the “TES” and “Marine” sections of Chapter 3 and in the BA/BE (Appendix B). The project includes mitigation that was developed with consultation with National Marine Fisheries Service to address the issue of disturbance to the sea lion haulout on Easterly Island. It is located in the general mitigation section of the unit cards (Appendix D of the Draft SEIS). It requires that project-associated aircraft would be required to remain at least 0.5 miles horizontal and 1,500 feet vertical distance from the sea lion haulout on Easterly Island.

No helicopter-to-water drops are authorized under Alternative C. The helicopter-to-barge method is proposed for Alternative C, with logs never entering the water. The barges will be anchored close to the proposed LTF site. For Alternatives B and D, the barges will not be maneuvered closer than 200 yards from the island.

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CWP-55:

Field surveys were conducted in 2000 at 62 stations. The District conducts yearly monitoring of known goshawk nests in addition to new surveys in the timber project areas. In addition to the field surveys, all field-going personnel are aware of the importance of finding and reporting goshawk activity and nests. There has been a lot of field reconnaissance in the Emerald Bay project area in addition to goshawk surveys without locating any goshawk nests or goshawk activity. Goshawk nests have been located in other project areas through field reconnaissance by various resource professionals. Information concerning goshawks can be found in the "TES" section and in the BA/BE, Appendix B.

The goshawk analysis did not intend to imply that there were no goshawks in the project area, rather that none were found during surveys. The analysis acknowledges that goshawks are extremely difficult to locate and that it is possible that goshawks could be present. Often, goshawk nests are found during project implementation. The Forest Plan (Forest Plan 4:90, 91) and the Tongass Plan Implementation Team (TPIT) provide guidance and protective measures should a goshawk nest be located during project implementation. The analysis of effects on goshawks does focus on changes in potential goshawk habitat and displays the differences between the alternatives.

CWP-56:

The statement in the Draft SEIS has been clarified in the Final SEIS. The statement compared traditional clearcutting with clearcutting under the marten guidelines. It did not mean to imply that it would be preferred goshawk habitat.

In contrast to traditional clearcut harvesting, retention of forest structure including large trees within harvest units would provide habitat features for goshawks. It is unknown at this time if goshawks would use this type of habitat.

CWP-57:

The project area (VCU 7210) was used to analyze the direct effects for many of the species, including goshawks. This VCU was established during Forest Planning, and is a distinct geographic area that generally encompasses a drainage basin containing one or more large stream systems. The units were established to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made (Forest Plan Glossary 7-47). Table TES-2 shows the percent of the project area that would provide goshawk habitat under the four alternatives.

Stands suitable as preferred goshawk habitat will be affected by timber harvest by 13 to 14 percent (Table TES-2) within the VCU under the action alternatives. This, in combination with effects of different silvicultural methods, the potential for disturbance and use of mitigation measures, is used to assess effects of the actions.

CWP-58:

The Forest Plan Standards and Guidelines for wildlife were designed to maintain habitat capability and therefore sustain viable populations over the long term. The Standards and Guidelines are used in combination with habitat evaluations to analyze project effects and design mitigation (Forest Plan, page 2-5). Nest buffers would be applied if goshawks or other raptors are found nesting in the project area, consistent with Forest Plan direction (Forest Plan page 4-114).

CWP-59:

WAA 1817 was used to address cumulative effects for goshawks, due to the documented home range size for goshawks in Alaska. Goshawk nesting habitat would be decreased by 2 percent across the WAA. A large portion of the goshawk-nesting habitat within WAA 1817 is protected by Old-growth Reserves and Beach/Estuary LUDs.

The Forest Plan FEIS provides information of the effect of proposed activities for the life of the Plan across the Tongass National Forest, most of Southeast Alaska.

CWP-60:

The WAA is the appropriate scale (Cole, 2005) to use for calculating impacts to deer. It is based upon ADF&G harvest data collection boundaries and therefore provides an opportunity to compare harvest data to habitat capability. Watersheds or VCUs are too small to address deer/wolf interactions since wolves have large territories and are too fine a resolution for using the model correctly (TPIT, page 16). The model was designed for use at the Forest-wide scale. The numbers show that, due to the limited scope of the project, none of the alternatives would have a major impact on deer habitat.

CWP-61:

The cumulative effects section for deer has been updated to discuss effects on deer habitat and movement. Habitat would be reduced approximately 1 percent. Effects from the road would be temporary in nature. Deer frequently cross roads and the medium OGR will continue to function as deer habitat and connectivity once the sale is complete. Connectivity and habitat remains unaffected through the small OGRs to the east of the project area.

CWP-62:

Model outputs are most useful to compare relative changes rather than indicating actual effects. As shown in Table Wildlife-5, the model shows that all action alternatives would have similar effects as measured over the VCU.

As with the deer model, the percent reduction is based on clearcutting all units. The 50 percent of the basal area remaining in the partial-harvest units and the trees left to meet the Marten Standards and Guidelines in the clearcut units were not accounted for in the analysis. The Marten Standards and Guidelines were specifically designed to reduce the long-term effects for marten.

CWP-63:

Prior surveys did not note any important late summer season brown bear feeding sites on the visited route (M. Brown, project record). They walked the proposed road corridor through the medium OGR and most of the anadromous habitat closest to the estuary at Emerald Bay. Recent field surveys (project record) by USFS and discussions with ADF&G and USFWS personnel indicate that the Emerald Bay estuary and the anadromous length of Emerald Creek receive high amounts of brown bear foraging use. Differences in the survey findings may be due to walking different locations (notes said the 2000 trip walked the "corridor") or difference in survey protocols. The Final SEIS ("Wildlife" section in Chapter 3) includes the new information and confirms that the Emerald Bay estuary and the anadromous portion of Emerald Creek is "quality late-summer foraging."

CWP-64:

The unit boundary would be modified to exclude the brown bear foraging site along the anadromous portion of Emerald Creek. Details are documented on the unit card. This is also discussed in Chapter 2, mitigation and in the "Wildlife" section of Chapter 3.

The normal operating season for a timber sale contract in Southeast Alaska begins on April 1st or May 1st depending on the geographical area. Timing restrictions for the bald eagle nest may not allow the operating season to begin until much later. If project activities begin in the spring and last approximately five seasons, brown bears may be displaced or their routines disrupted by the human activity adjacent to this habitat. This disruption is anticipated to take place during days of operation and habitat use is still likely to occur during evenings, nights, and periods of no logging activity. Full use of this habitat is expected to resume after harvest operations have concluded.

CWP-102:

The Final SEIS has clarified where the escape terrain and high use areas are ("Wildlife" section in Chapter 3). No escape terrain would be harvested under any alternative and only 3 acres would be harvested in high-use areas. The change in high-use habitat would be less than 1 percent.

CWP-65:

The discussion of effects to mountain goats is in the "Wildlife" section in Chapter 3. Currently there is no goat-hunting season on Cleveland Peninsula, but the analysis did address changes in vulnerability if a hunting season was re-opened. The opening and closing of seasons is controlled by the State Board of Game and the Federal Subsistence Board. The hunting seasons have been closed due to overharvest of goats in the past and the relative small and isolated nature of the populations.

The project area lies between goat populations from Vixen Inlet to the south, and the Twin Rift/Lake McDonald area to the north (B. Porter, ADF&G, pers. comm.). There are no known kidding or nursery areas, and no areas of concentrated winter use in the project area. As a result, there are no goat population survey transects in the area, but it is possible that individuals could move through the area. The Forest Service and ADF&G have been working together on mountain goat studies on the Cleveland Peninsula studying population, distribution, movements and genetics.

CWP-66:

The goat section was updated for the FEIS. Mountain goat studies on the Cleveland Peninsula by Smith and Raedeke in 1982 and by Fox et al. (1989) were used to define goat habitat. These studies defined escape terrain or slopes ≥ 50 degrees (120 percent slope) with a surface broken up by rock outcrops. Fifty degrees best represents the cliff habitat present within the project area and on the Cleveland Peninsula.

CWP-67:

Mountain goats tend to have very small home ranges, so large areas of analysis would not be appropriate. For this reason, VCU 7210 (the project area) was used to analyze the direct effects for many of the species, including mountain goats. VCUs were established during Forest Planning, and are distinct geographic areas that generally encompass a drainage basin containing one or more large stream systems. The units were established to provide a common set of areas for which

Appendix D

resource inventories could be conducted and resource value interpretations made (Forest Plan Glossary 7-47). See response to comment CWP-65. The habitat impacts were quantified by acres as well as percentages.

CWP-68:

There are no known kidding areas, nursery areas or areas of concentrated winter use within the project area (see response to comments CWP-65 and 66). Any disturbance to mountain goats would be most likely to be to males moving between areas to the south and to the north during the rutting season.

CWP-69:

See response to comments CWP-65 and 66. The goats could use escape terrain year-round. However, the project area is not known to receive year-round use by mountain goats, but may be used by males moving between populations during the fall breeding season.

CWP-70:

Alternative C avoids the LTF and road conflicts with the eagle nest buffer by using a helicopter-to-barge logging system. Alternative road and LTF locations to avoid the 330-foot bald eagle nest buffer were considered but were not feasible or had more effects to other resources (see "Marine" and "Transportation" sections of Chapter 3 and reports in project file). The effects to the bald eagle are disclosed in the "Wildlife" section of Chapter 3. A variance would need to be obtained with the USFWS prior to any harvest activities.

Variances have been granted in the past. A request for a variance has been submitted to the USFWS for review and compliance with the MOU and the Bald Eagle Protection Act. The LTF site has been visited by USFWS personnel and their recommendations have been considered.

CWP-71:

The effects of roads on wolves are discussed in the "Wildlife" section of Chapter 3. Because of the distance from population centers, potential rough sea conditions especially during trapping season, removal of the LTF and storage of the road, motorized and foot travel use of the road is expected to be minimal, and adverse effects to wolves are expected to be minimal and of short duration. Road closure measures after project completion are designed to eliminate road use by motorized vehicles including OHVs. ADF&G will monitor the harvest of wolves in the WAA and can make any adjustments to the hunting and trapping season as necessary.

CWP-72:

These species are discussed in the "Wildlife" section of Chapter 3. Most units incorporate the Marten Standards and Guidelines ("Wildlife" section of Chapter 3, and Unit Cards), which require retention of an average of three large decadent (dead or dying) trees/acre (20-30" or greater in diameter at the large end and 10 feet long). Where not available, the next largest decadent trees will be substituted. To address snag recruitment over the long-term, at least 10 to 20 percent of the original stand structure would be retained, as well as an average of at least four large trees/acre. These trees may be left scattered over the unit, or clumped as outlined in the TPIT (1998). The medium OGR and adjacent small OGRs will also provide snags for habitat for these species.

CWP-73:

This project would implement nest protections as directed by the Forest Plan. Occupied nest trees would be protected by mitigations including a 600-foot windfirm buffer, no disturbance during the active nest season, and monitoring as described in the "Wildlife" section of Chapter 3, and the Unit Cards). The nest will be monitored in accordance with the Forest Plan.

CWP-74:

In the Final SEIS, the estuary is included in Table Water-1 and is discussed in the "Water" section of Chapter 3. The tall sedge fen near Unit 11 is included in the riparian buffer and would be excluded from harvest.

CWP-75:

The figures represent the Interdisciplinary Team's "worst case" estimate of blowdown that could occur along high-gradient streams. The estimate is professional judgment based on similar areas with past harvest on the Ketchikan-Misty Fiords Ranger District, aspect of harvest units, familiarity with wind direction in harvest areas, and field knowledge of soils in the area.

CWP-76:

Harvesting timber from forested wetlands temporarily changes the hydrology of the site. Patric (1966) suggests an increase in water yield as a result of timber harvest. A temporary increase in soil moisture is expected until equivalent transpiration and interception surfaces are reestablished. Water yield may be elevated until adequate regrowth of timber has occurred.

Exact duration varies by site with the highest productivity sites recovering first. Adequate regeneration occurs in Southeast Alaska and tree growth is rapid.

Roads through wetlands can affect the flow and reach of water in the wetland. As stated in Appendix B, page B-31 of the Emerald Bay Final EIS (response to comment to SEAAC-5):

"The Soil, Floodplain and Wetlands Resources Report for the Emerald Bay project area discussed the effects of forest roads on wetlands. The report cited one study completed on a forest road outside Wrangell, Alaska that found the hydrologic effects of a forest road bisecting a gently sloping poor fen limited to within approximately 50 feet of the road (Swanston and others, pers. comm., 1997).

Recently, Masters student Katherine McGee studied the effects of forest roads on surface and subsurface flows in a wet forested soil near 12-Mile Arm on Prince of Wales Island. McGee found that the road ditch intercepted nearly all of the area precipitation from upslope contributing areas. However, the amount of road intercepted flow did not translate into equivalent changes in subsurface water levels, rather the changes in subsurface water levels are typically minimal. Where changes do occur, they tend to be concentrated immediately above the cutbank and below the road fillslope (McGee, 2000). The Forest Service agrees that the effects of forest roads on wetlands are only beginning to be studied in Southeast Alaska. The Forest is in the process of developing monitoring protocols for forest roads on wetlands as required by the Forest Plan. At this time the information gap is considered acceptable based on past experience and the information provided by Swanston and others (pers. comm., 1997), and McGee (2000). The Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 1999 states that based on the existing information adjusting wetland Standards and Guidelines at this time is not necessary (page 117)."

CWP-77:

See the response to comment CWP-78. The impacts to wetlands were considered in this analysis and in the analysis for the Forest Plan. All high-value wetlands have been avoided where feasible. Timber harvest will occur only on forested wetlands found suitable for timber production.

CWP-78:

Logging system damage is discussed in the "Silviculture" section of Chapter 3 and in the stand prescriptions (project file). Logging systems, including helicopter yarding, are discussed in Chapter 2, and include the statement "this yarding system causes the least amount of ground disturbance of all the systems". The acres to be harvested by each system are displayed for the alternatives.

The timber sale contract would include provisions to contain spills and minimize resource damage in the event of a spill.

Effects of helicopters are discussed by species where appropriate in the "Wildlife" section of Chapter 3. See response to comment CWP -54. Mitigation measures include restrictions on helicopter yarding to protect wildlife.

CWP-79:

Unit layout personnel have access to aerial photographs and GIS data to create detailed, large-scale maps in addition to the unit cards. Maps in the Final SEIS have been revised to improve clarity.

CWP-80:

Road card maps have been updated to show all the features that you mention.

CWP-81:

Two roads in Alternative B would be temporary roads and are displayed on the Draft SEIS Unit Card for Unit 1. There is no requirement to show temporary roads on unit cards, but it was determined to be helpful to better help the public understand the document. Overall road mileage figures (6.2 miles) for Alternative B includes all roads. An estimated 0.4 miles of road in Alternative B would be temporary road and 5.8 miles would be system roads (classified roads). Road cards are not prepared for temporary roads as they are not part of the classified road system and are decommissioned after their use for the timber harvest.

CWP-82:

Unit 1 maps have been updated to show Units 1A and 1B.

CWP-83:

The portion of the cutting unit within the windfirm buffer would be harvested leaving windfirm trees. Windfirm buffers harvest in such a way as to help retain the integrity of buffers and minimize the potential for windthrow.

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CWP-84:

The requirement is for split yarding or full suspension. The lower portion of the unit is designed for shovel yarding. The timber can be decked under a swing tree and yarded to the road, either to a landing just west of the stream crossing, or fully suspended over the stream to a landing east of the stream crossing.

CWP-85:

Log-stringer bridges would be used on the stream crossings and would minimize instream disturbance. This stream is buffered throughout the unit.

CWP-103:

Most of Unit 1 is defined as high-value marten habitat. The silvicultural prescriptions leave all western redcedar and Alaska yellow-cedar trees 25-33" and greater than 45" in diameter to meet the Marten Standards and Guidelines.

CWP-86:

Log decks would be located adjacent to roads in Alternatives B and D. Decking locations in Alternatives B and D would be agreed upon by the Forest Service sale administrator and the timber operator. Minimal clearing would be required for the decks adjacent to the roads. Logs would not be decked, but would be loaded directly on barges by means of helicopter in Alternative C.

CWP-87:

A 100-foot horizontal no-harvest buffer would be placed around this lake since it exceeds 3 acres in size. Fisheries biologists have surveyed this lake and it does not contain fish. No osprey or bald eagle use was noted, which is as expected since there are no fish in the lake. The lake does provide habitat for wildlife that frequent and use lake habitats, such as waterfowl. No swans have ever been seen on this lake, and their use is not likely due to the lake's elevation. The steep slopes above the lake would be harvested using single-tree selection or remain untreated as stated on the unit cards, and logs would be removed through helicopter yarding in Alternatives B, C, and D. The potential for landslide-prone soils has been mitigated by excluding 4 acres, and by achieving full suspension with helicopter logging and retaining 50 percent of the basal area.

CWP-88:

Unit 5 would be treated with single-tree selection and helicopter yarding in Alternatives B, C, and D. Fisheries/hydrology and wetlands resource concerns and mitigation are identified on the unit cards. The steep portions of the unit that have been determined to be appropriate for timber harvest by a soil scientist have been included in the harvest unit. Steep areas that have not been approved have been removed from this harvest unit.

The HC5 stream referenced is a Class III stream that has a riparian buffer applied according to the narrative section of the unit card. The scale of the map and other map features may make this difficult to discern.

CWP-89:

Slopes are not above 72 percent in this unit. There is not a tall sedge fen near Unit 9; it is a poor fen, also known as a muskeg. This muskeg is part of the adjacent riparian buffer and has been avoided.

This small piece of marten habitat (.02 acre) represents a GIS sliver and habitat is created as a result of overlaying different GIS layers. This area amounts to about a 30' by 30' piece of land that would be too small of a portion to apply the marten standard. Units that fall into the high-value volume strata below 1,500-foot elevation are considered high-value marten habitat.

CWP-90:

No high-value goat winter habitat is identified within this unit. Measures to protect resources (soils, streams, wetlands, and the red-tailed hawk) are included and identified on the unit card for each alternative.

The red-tailed hawk nest would be re-surveyed before timber harvest activities begin. If the nest is active, Forest Plan Guideline X.A.2 (Forest Plan page 4-116) would be implemented to limit disturbance during the nesting season. This Forest Plan Standard and Guideline would also limit the use of helicopters around the nest.

CWP-91:

Unit 1 and Unit 11 are separate units; they have not been combined. There are multiple prescriptions applied to these units. Unit 1b and 1d have 78 acres of clearcut, while Unit 11 has 97 acres of continuous clearcut. The units are separated by no-cut areas and portions of the units contain uneven-aged management prescriptions. Parts of these units will be single-tree selection and leave 50 percent of the basal area. Areas with high-value marten habitat will have 10-20 percent of the stands structure, including large trees, remaining.

The unit card has been updated to clarify the protection measures for the streams and the discrepancies corrected. The stream crossing will be designed as described on the road card for Road 8645950.

The steep portions of the unit that have been determined to be appropriate for timber harvest by a soil scientist have been included in the harvest unit. Steep areas that have not been approved have been removed from this harvest unit. Soils concerns for this unit can be found on the unit card narrative.

CWP-92:

Unit 12 was one contiguous unit when the Draft EIS was issued in 2000. Additional field reconnaissance accomplished since then has refined the unit boundary. The fragments were retained as one unit to allow tracking from the Draft EIS through the Final SEIS.

CWP-104:

The connection of units in Alternatives B and D by the proposed road is unavoidable since the road provides access to the units. The road will be closed to motorized use and will revegetate rapidly as most openings do in Southeast Alaska. Parts of these three units will be single-tree selection and leave 50 percent of the basal area, and would not constitute an opening. Areas with high-value marten habitat will have 10-20 percent of the stands structure, including large trees, remaining. The unit is fragmented into portions and has irregular boundaries and breaks due to topography. The resulting area will not appear as a "mammoth clearcut" and will also revegetate rapidly.

CWP-93:

The Tongass database shows this stream as a Class IV. At the time of implementation all streams will be field verified. All Forest Plan Standards and Guidelines for streams will be implemented. Unit cards will be updated to include additional mitigation measures to protect this stream

Appendix D



Natural Resources Defense Council
Advocacy Center

November 29, 2004

John Natvig
USDA Forest Service TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

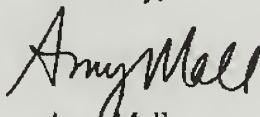
Dear Mr. Natvig:

Enclosed are 40,474 public comments submitted to the Forest Service regarding the Emerald Bay Timber Sale in the Tongass National Forest. Because the Forest Service did not make available a direct way for the public to comment electronically, through an e-mail address or a fax number, NRDC has provided this service to the public. The enclosed comments were collected by NRDC from the public, and we are submitting them to you on CD so that they can be considered official comments.

In the future, we strongly urge you to facilitate public input by making an e-mail address available for comment submission.

Thank you for your cooperation with this effort.

Sincerely,


Amy Mall

www.nrdc.org

1200 New York Avenue, NW, Suite 400
Washington, DC 20005
tel: 202 289-6868 fax 202 289-1060

new york • los angeles • san francisco

NRDC Website form letter referenced, submitted on CD to TEAMS:

November 17, 2004

John Natvig
 USDA Forest Service TEAMS Enterprise
 Attn: Emerald Bay
 P.O. Box 241
 Fort Meade, SD 57741

Dear Mr. Natvig and Forest Service staff,

I urge you to select the "No Action" alternative for the Emerald Bay timber sale and to withdraw your proposal for roadbuilding and logging in the roadless Cleveland Peninsula of the Tongass National Forest. I strongly oppose taxpayer subsidies for destroying the wildest areas of the Tongass.

NRDC-1

The Tongass is the crown jewel of our National Forest system -- a remote coastal rainforest unparalleled anywhere on the planet, home to awe-inspiring landscapes and wildlife. The proposed Emerald Bay timber sale would build more than six miles of roads and log over 600 acres through the unspoiled Cleveland Peninsula. The sale could cost taxpayers \$3 million in subsidies for timber companies, and would destroy the home of wolves, grizzly and black bears, deer, bald eagles and marten. Even the U.S. Fish and Wildlife Service found that logging and roadbuilding in the Cleveland Peninsula would "degrade its value as wildlife habitat."

NRDC-2

This is an area that should be preserved, not torn apart. Again, I urge you to adopt the "No Action" alternative, and withdraw the proposed Emerald Bay timber sale.

Sincerely,

(name and address of person submitting form letter)

Forest Service Response to Amy Mall, Natural Resource Defense Council:**NRDC-1:**

The 40,474 letters recommended selecting the No-action Alternative.

All the alternatives, including the No-action Alternative, receive the same consideration by the Responsible Official. The final decision for the Emerald Bay Timber Sale will be made on the best information available after considering the environmental analysis of the effects on other resources and all public and agency comments received during the planning process.

NRDC-2:

The Forest Service project ID Team Forest Staff and the Deciding Officer consider input from USFWS and other Federal and State agencies during project analysis. The ID Team and Deciding Officer have worked closely with personnel from the USFWS Service. The statement referenced here is from the USFWS's DEIS comment letter dated May 5, 2000, under a section titled "Road Management", and the sentence actually reads: "Construction and use of logging roads will substantially alter the character of the area, affect future development options, and, we believe, degrade the Cleveland Peninsula's value as fish and wildlife habitat." The Forest Service responded that proposed roads in the Emerald Bay project have been designed to avoid aquatic degradation, including log-stringer bridges at stream crossings (rather than culverts), avoidance of steep, unstable terrain, and minimization of footprint and hydrologic interception. The "Marine" and "Transportation" sections in Chapter 3 disclose a number of ways that the adverse impacts of road and LTF construction would be minimized. All classified roads would be placed into storage and all temporary roads would be decommissioned after logging activities are complete and stringer bridges would be removed.

Appendix D

John Natvig
USDA Forest Service; TEAMS Enterprise
Attn: Emerald Bay
P.O. Box 241
Fort Meade, SD 57741

Re: Comments on the Draft Supplemental EIS for the Emerald Bay Timber Sale

Dear Mr. Natvig,

The following comments on the Emerald Bay Timber Sale Draft Supplemental EIS (DSEIS) are submitted on behalf of Greenpeace, Juneau Group of the Sierra Club, Natural Resources Defense Council, Sitka Conservation Society, Southeast Alaska Conservation Council, The Wilderness Society, and Tongass Conservation Society.

The Tongass Conservation Society (TCS) is a local non-profit organization based in Ketchikan, Alaska. TCS's mission is to protect the future of its community by working to preserve the environmental quality of the land, air, and waters of the southern Tongass rainforest. Among TCS's members are commercial and subsistence fishermen, shellfish divers, tourism business proprietors, charter boat owners and many other people. Members of TCS hunt, fish and recreate within the Emerald Bay Project Area.

All of the organizations have a long history of involvement in the planning process on the Tongass National Forest, especially related to proposed plans for logging and road building. The organizations' memberships include hundreds of Alaskans many of whom live and work in and use the Tongass National Forest and are concerned about management of its natural resources and roadless areas. Our members within the Tongass include commercial fishermen, Alaska Natives, tourism and recreation business owners, and hunters and guides. The groups are committed to preserving the integrity of Southeast Alaska's natural environment and protecting its wildlands from unnecessary development.

The Draft Supplemental Environmental Impact Statement for the proposed Emerald Bay Timber is severely inadequate, lacks detail, and contains inaccuracies. The DSEIS does not serve either the public or the decision-makers.

We request that either the entire Emerald Bay project be scrapped or a significant amount of addition analysis be conducted before any further action is taken.

The following are our detailed comments and concerns:

The Range of Alternatives Presented is Inadequate

NEPA regulations specify that the alternatives chapter "is the heart of the environmental impact statement," and that its purpose is to "sharply define the issues," providing "a clear basis for choice among options by the decision maker and the public." (40 CFR 1502.13) The section

continues: "In this section agencies shall rigorously explore and objectively evaluate all reasonable alternatives."

The 2001 Emerald Bay SDEIS analyzed four alternatives: the no action and three action alternatives. The action alternatives proposed in the 2001 SDEIS range from logging 10.8 to 16.3 MMBF of timber and constructing zero to over six miles of road. Despite the fact that numerous groups throughout the NEPA process, including in appeals of the 2001 ROD, expressed concern that the range of alternatives for the project is too narrow, the SDEIS presents the same limited range. We believe this narrow range of alternatives is directly limited by the unreasonable and unsupported purpose and need driving this project.

Comb-1

As the SDEIS clearly states, and as is explained in detail elsewhere in these comments, the demand for Tongass timber has declined substantially since 1999 when the economic analysis for this project was first done. (See SDEIS 1-3). These changes have rendered Alternative C economically infeasible. Despite the fact this was known when the 2001 ROD was issued, the SDEIS continues to use this non-feasible alternative. (See SDEIS 2-7) Alternative D, would have produced a positive net stumpage value under 2001 market conditions, however the current net stumpage value is negative. The result is the SDEIS presents for all intents and purposes only one alternative as the no action alternative clearly does not meet the "purpose and need" driving this project and 2 of the alternatives are not economically feasible. By failing to re-address the alternatives during this SDEIS process, the Forest Service has manipulated the process so that only one choice remains- the preferred alternative. This does not constitute a reasonable range of alternatives as required by NEPA.

Comb-2

The Proposed Action Section of the SDEIS is Contradictory and Misleading

The SDEIS on numerous occasions states "no roads or log transfer facilities would be constructed" under the proposed action and "logs would be helicopter yarded from the cutting units to a barge in Emerald Bay." (See SDEIS S-1; 1-2) While this former statement is clearly the case for the no action alternative and alternative C, and the later applicable to alternative C only, these statements are being made in direct relation to the proposed action section. In fact the proposed action section gives no indication that indeed the action proposed includes construction of 6.6 miles of road and an LTF. This is clearly misleading to the public who may quickly look at the document- see no roads or LTFs are planned, and therefore underestimate the potential impacts of this project. This problem appears to be a result of the Forest Service using a cut and paste approach to the creation of this new document rather than carefully updating all information. The result is a grossly misleading statement regarding the fundamental intent of the Forest Service related to this project.

Comb-3

The Maps are Unclear.

While we appreciate that the SDEIS provides numerous maps to help visually explain the project to the reader, a number of the maps are difficult or impossible to use as they are presented in black and white rather than color. For example, on page 2-18 a map depicting Alternative B is displayed, however the shading used for displaying helicopter versus shovel units appears identical. A similar situation exists on the map on 3-37 where Roadless LUD II's are

Comb-4

indistinguishable from “non-national forest lands” due to the poor color choice. We request that the maps either be provided in color or more textured keys be used.

Comb-4
cont.

The DSEIS Violates Forest Service Direction and NEPA Because It Does Not Contain A Complete Financial Efficiency Analysis

The DSEIS contains minimal analysis of the costs of administering the Emerald Bay Timber Sale, of the expected returns to the agency, and of the economic benefits of leaving the timber standing. Because it fails to conduct legitimate financial and socioeconomic analyses of the sale, it violates NEPA. The final EIS should correct these defects, discussed in more detail below.

In planning a timber sale project, the Forest Service is required to compare the public money it will spend administering the project with the prospective returns to the agency. That analysis, which “compares estimated Forest Service expenditures with estimated financial revenues”, allows the decision-maker and the public to gain some understanding of “the future financial position of the program if the project is implemented.” (Forest Service Handbook § 2409.18_30).

This comparison of public costs and returns, called a Financial Efficiency Analysis, is required by the Forest Service Handbook and by NEPA. See Forest Service Handbook §§ 2409.18_20 at 5-6, 2409.18_10 at 10, 2409.18_30 at 7; 40 C.F.R. § 1508.8(b) (“Effects includes ecological . . . aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.”); *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 446 (4th Cir. 1996) (“NEPA requires agencies to balance a project’s economic benefits against its adverse environmental effects.”).

Comb-5

The DSEIS purports to conduct such an analysis in Chapter 3 of the DSEIS (stating that the “[p]ublic investment analysis of each alternative compares the value of the timber with the cost of preparing the timber sale.” DSEIS 3-50). That analysis, however, does not contain any discussion or estimation of the public costs incurred by the Forest Service in administering the Emerald Bay project. See *id.* at 3-50-51. Although the section claims that Alternative B would be the least costly to prepare, it offers no actual estimation of costs, and does not indicate that ALL alternatives would result in a significant loss to the Forest Service. Accordingly, the DSEIS does not comply with the Forest Service Handbook or its own description of the analysis. (See *id.* at 3-50).

This failure is particularly egregious given the central role played by economics in the decision-making process for the Emerald Bay project area. Timber economic is identified in the DSEIS as one of two “significant issues” for analysis. (DSEIS 1-12). Moreover, the benefits associated with logging in the Emerald Bay area are almost entirely financial. (DSEIS 1-6) (explaining the purpose and need for logging in terms of timber production, market demand, local and regional economies, and employment); (DSEIS at 3-50) (describing employment and income benefits). Thus, economic benefit from logging – whether to timber companies, mills, local economies, or the Forest Service – provides the basic reason for offering timber in this area.

With that context, the failure to disclose public costs violates NEPA because it creates the impression that the Forest Service will make money by offering timber. To remedy this deficiency, the final EIS must include an accurate estimate of the costs that will be incurred by the public. That cost must then be factored into a Financial Efficiency Analysis to allow the public and decision-maker to understand fully the financial ramifications of approving logging in the Emerald Bay area.

Comb-5
cont.

The SDEIS's Reliance on the NEAT Model for Analysis of the Economic Efficiency of the Emerald Bay Timber Sale is Un-reliable and Arbitrary

First, the time frame used for the analysis, September of 2000 to the end of June 2003, includes sales that have been cancelled, or have been requested to be cancelled, under SEC. 339. (a) of the Interior bill that was signed into law on November 10, 2003 (PL 108-108). These sales include Road 6402, purchased under a May 2001 bid by Viking Lumber and now cancelled, and Rio Beaver which was still owned by the Gateway veneer mill in Sept. of 2001 and is now being cancelled by the current owner, Silver Bay Lumber. These cancellations are due to the sales being un-economic under the prices bid for them. By including these transactions in NEAT's input, NEAT's output can only be assumed to be correct if the Forest Service is assuming future sales, including Emerald Bay's, will also be cancelled and returned because they turn out to be un-economic.

Second, the time frame used for analysis includes other returned sales such as the South Lindy Mountain Timber Sale, sold to the Gateway veneer mill. This sale was returned to the Forest Service when the veneer mill went bankrupt. It was re-offered, still in the NEAT timeframe, at reduced rates and received no bids. As the re-offer was un-successful this information is not inputted into the model. Also in this timeframe were the returned sales Deadwood 4 and 5.

Third, the NEAT analysis timeframe includes sales that were only successfully re-offered because they were pre-loaded. These sales include Summore Change, pre-loaded at a cost of \$2,073,739.00, Mad Rush, pre-loaded at a cost of \$402,713.49, and Chrome, pre-loaded at a cost of \$629,140.93. If these transactions are included in NEAT's input, without adjustments being made for the huge amounts of public expenditures needed to make the offerings successful, NEAT's output is fatally flawed and arbitrary.

Comb-6

Fourth, as noted before, the timeframe used for the NEAT analysis is outdated. Since June of 2003 market conditions and the non-competitive situation that exists on the Tongass have only become worse. Nearly every large sale offered has been advertised at rates near or at base prices. Many of these sales received no bids for their initial offering, including Licking Creek, Luck Lake/Luck Lac, Midway, and the afore mentioned re-offer of the Gateway returned South Lindy Mountain. Sales that have received bids have usually received only one bid, and little or no premium over the minimum "Total Bid Value" for the sale. These sales include Fusion, Orion South, Orion North, Situk Blowdown, the off the shelf purchase of Licking Creek, Kogish Shinaku, Midway, and Finger Point. The Midway and Finger Point sales are particularly indicative of the current situation on the Tongass. The re-configured re-offer of South Lindy Mountain received virtually no premium over base rate, received only one bid, and this was in spite of it being pre-loaded at a cost of \$680,991.50 to the taxpayers. Midway received only one

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bid of \$53,050.00, no premium over its base rate, and was pre-loaded for over 2.6 million dollars.

Fifth, the NEAT model is not an appropriate appraisal or analysis method due to the non-competitive market situation that exists for large timber sales on the Tongass. The Forest Service Manual says of Non-Competitive Markets:

2422.3 - Noncompetitive Markets

"Noncompetitive markets are areas with a limited number of bidders for forest products, limited buyers, and/or limited centers of manufacture for forest products. Regional Foresters may establish more specific parameters to define noncompetitive markets. Determine the market area or zone in which noncompetitive markets occur, and design an appraisal process that can best achieve selling timber at fair market value (FSH 2409.18, sec. 45.3)".

The NEAT analysis and appraisal method does not assure the selling of timber at fair market value. It is a transaction based system that does not take into account the lack of incentive for the purchasers that do exist to offer bid premiums. There is little incentive for purchasers to bid at all on a sale offered at rates higher than base when they know that it is unlikely to be bid on by another operator. They can instead wait for the inevitable re-offer which will be at lower rates, and/or wait for the Forest Service to "improve the economics of the sale" by changing logging methods, utilization standards, or pre-loading the sale. Examples of this practice include Finger Point and Kogish-Shinaku, both of which have been re-configured and re-offered, and have been or will be pre-loaded. The lower rates paid for timber that result from a non-competitive market will also be "institutionalized" in the NEAT model for up to three years, improperly effecting the model's output when future sales are offered. Of note is that end market lumber prices are at a 10 year high, yet mills such as Icy Strait, Viking, and Seley/PLL are locking in sales at rock bottom prices. For this reason the Emerald Bay Timber Sale's SDEIS should again be remanded until an analysis and appraisal method that informs the public of the true public investment costs, and assures achievement of the requirement that the public receive fair market value for its timber is designed and implemented for R10. It is of note in this regard that the Region 10 Forest Service has been authorized for several years now to formulate an appraisal model tied to actual price indexes, as is used in other western states, but has failed to do so. This method allows yearly rate adjustments, up or down, that insure the receipt of "Fair Market Value" for National Forest Wood Products.

Comb-6
cont.

Sixth, the NEAT model's calculated results of Net Revenue for Emerald Bay's Alternative B gives an impression that the public can expect a large financial return in the form of stumpage fees from the Emerald Bay Timber Sale. Only rarely over the last three years have significant amounts over base rates been paid for large sales. At no time over the last three years has a bid approaching \$47.00 per CCF (\$94.00 per mbf), the estimated Net Revenue @ Current Market for the sale, been offered. Our calculations show that for FY 2004 an average of \$13.62 per mbf (\$6.81 per CCF) was paid for R10 volume. For Cy 2003 through 2004 the large mills paid \$12.00 per MBF (Viking), \$7.20 per MBF (Seley-PLL), and \$6.00 per MBF (Icy Strait). If Table ST-4 and Figure ST-1 are an additional attempt by the Forest Service to comply with their obligation to do a Public Investment Analysis specific to the Emerald Bay Timber Sale it is inadequate and misleading. It is certain that the 4 paragraphs that the DEIS does devote to Public

Investment totally lacks any quantitative data. We request a new SDEIS be prepared that includes a full disclosure of projected "Public Investment" costs for the Emerald Bay Timber Sale that is based on documented past costs of the Tongass Timber Sale Program, and that it includes a projection of expected timber receipts that is based past bidding by large mills and takes into account the non-competitive market that exists on the Tongass.

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cont.

The DSEIS Fails to Include a Public Investment Analysis

There is no discussion in the FEIS or ROD of the public investment that has been, and will be necessary, to prepare, offer, and administer the Emerald Bay Timber Sale. That information is required as part of the Financial Efficiency Analysis, and its omission prevents the public and decision-maker from accurately evaluating the financial costs and benefits of the alternatives and from measuring the return to the public for its investment in administering any potential logging in the Emerald Bay area.

The Forest Service spends large sums of public money each year on its timber program and receives little revenue in return. Unlike many other National Forests the Tongass National Forest's timber sale program has been hemorrhaging taxpayer dollars for decades. Estimates of the Region 10 timber program losses range from staggering to even more staggering. A conservative calculation of the average loss per thousand board feet (mbf) over an eleven-year span, 1992-2002, works out to \$157.00/mbf. Other calculations that include legislative earmarks for pre-roading and other special appropriations show an even higher level of taxpayer subsidy. (See SEACC, Taxpayer Losses and Missed Opportunities: How Tongass Rainforest Logging Costs Taxpayers Millions (Fall 2003)).

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The Forest Service states in its FEIS for the Roadless Area Conservation Rule (RAC) that the agency has lost on average \$178 per mbf from 1996-1998 for all commodity timber sales on the Tongass National Forest. (RAC FEIS 3-298). The FEIS projects that over the next 5 years, negative annual revenues of \$13,634,800.00 will result from Tongass roadless area sales (RAC FEIS 3-304). This computes out to a subsidy of approximately \$35,000.00 for each of the 86 direct jobs the DSEIS anticipates will be generated by these sales (RAC FEIS 3-302). Even these numbers, based on a negative revenue of \$178 per mbf, are probably low according to the FEIS. The FEIS says "it is likely that preparing sales in inventoried roadless areas may have higher average costs than other sales" (RAC FEIS 3-303). In addition to the numbers reported in the RAC, the Forest Service recently reported up-dated figures for 1998 that record a loss of 29.1 million dollars and an even higher subsidy rate of more than \$46,000 for each direct job generated by the Tongass commodity timber program, both roaded and un-roaded sales. The purpose of the National Environmental Policy Act is to provide an accurate disclosure of impacts to the natural and human environment for the public and decision makers."

Using the conservative calculation of a net loss of \$157.00 per mbf, an estimate of the expected total taxpayer subsidy for the Emerald Bay Timber Harvest Project's selected alternative can be made. With the preferred alternative cutting 16.3 million bf the project's loss can be expected to be at least 2,914,394.00 dollars. The DSEIS, however, does not discuss this information and, in so doing, fails to fulfill the Forest Service's obligation to provide quality information to the

public and decision-makers. The final EIS should discuss the extent of financial loss likely to be incurred by the Forest Service in offering the Emerald Bay Timber Sale.

Comb-7
cont.

The DSEIS Market Demand Analysis Is Arbitrary and Violates NFMA, ACT, TTRA, NEPA, and ANILCA.

In large part, the DSEIS justifies logging in the Emerald Bay Planning Area in order to meet perceived market demand for Tongass timber. The demand considered by the Forest Service is based on planning cycle projections made in 1997 by Forest Service economists David Brooks and Richard Haynes.

Similarly, the Forest Service relies on the Brooks and Haynes projections in determining how much timber to offer for sale each year. The FEIS states that that decision is made using a formula described in two documents, *Evaluating the Demand for Tongass Timber* and *Responding to the Market Demand for Tongass Timber*. That annual calculation depends on a variety of factors that vary from year to year, including mill capacity, utilization, percent usable wood, volume under contract, lead time between contracting and logging, and other variables. It has the central goal of supplying enough timber to meet the "harvest projections" forecast by Brooks and Haynes.

Moreover, these logging level estimates form the basis for the Forest Service's "Gate System" because they are used to determine how much timber should remain in the various "pools."

Thus, the Brooks and Haynes projections are central to meeting the demand over the planning cycle and in the annual calculations made to determine timber offerings. Nonetheless, the Forest Service has not updated the projections to reflect changed market conditions. While the Brooks and Haynes report provided the best estimates of market demand available in 1997, changing circumstances in the intervening years have proven even the lowest of these estimates to be too high. Since 2000, when the last timber was cut pursuant to the long-term contracts and KPC Settlement, the average cut from the Tongass has been about 44 MMBF/year, less than half of the "low" scenario projected by Brooks and Haynes. The lower logging levels are one indication of this market decline. In addition, prices for Tongass timber have declined dramatically since the highs of the mid-90s. See 2003 Wilderness FSEIS at 3-253 ("Prices for all of the species harvested on the Tongass have declined considerably over the last five years.").

Comb-8

The Forest Service has recognized the extent and severity of the market decline. Indeed, persistent depressed market conditions led the Forest Service to grant extensions of up to three years for contracts awarded after January 1, 1997, and later to offer to cancel twenty contracts outright.

The market downturn results in large part from two changed circumstances that contradict explicit assumptions made by Brooks and Haynes: Japan is importing less wood from Alaska and North America than Brooks and Haynes assumed; and, contrary to predictions, no new market has developed for the low grade Tongass wood that used to go to the pulp mills.

In the 2003 Wilderness FSEIS, the Forest Service acknowledged “a number of differences between Brooks and Haynes’ (1997) assumptions and actual conditions in 2000.” 2003 Wilderness FSEIS at 3-287. Specifically, “Brooks and Haynes assumed, for example, that North America’s share of Japanese softwood lumber imports would range from 70 to 76 percent, depending on their scenario. North America accounted for just 61 percent of Japanese softwood lumber imports in 1999.” *Id.* at 3-287 to 288; see also *id.* at 3-253 (“The value of [Tongass timber exports to Japan] has declined by more than half over the last five years.”).

The second assumption that did not materialize was that, following the closure of the Alaska pulp mills, new markets would be found for the low-grade timber. *See* Brooks and Haynes at 4 (“For these revised scenarios, we assumed that alternative markets, either export or domestic, can be developed for chips, low-grade saw logs, and utility grade logs. In the absence of markets, low-grade saw logs and utility logs may be left as logging residues.”); TLMP FEIS at M-6 (“All the projections assume that lower grade material that was previously directed to pulp production, including the low-grade sawtimber previously directed to the KPC pulp mill, can be exported.”). The Forest Service acknowledged in the 2003 Wilderness SEIS that this projection did not pan out: “While these data indicate that a market existed for chips in 2000, this is no longer the case.” *See* 2003 Wilderness FSEIS at 3-252 to 253. Instead, “timber sales on the Tongass now include an Optional Removal clause ... that allows sale purchasers to leave behind utility logs. These logs still have to be purchased as part of the timber sale but the purchaser no longer has to remove them, saving on logging and haul costs.” *See Id.* at 3-253. While Brooks and Haynes did contemplate that the residues could be left on site, the lack of a market for chipped logs does have a direct and significant effect on the economics of and demand for logging. “[T]he loss of the market for wood chips has important implications for the economic viability of timber sales on the Tongass. ... The lack of a market for chips also has resulted in an increase in applications to export low grade round Sitka spruce and hemlock logs harvested on the Tongass.” *Id.*

Comb-8
cont.

The DSEIS recognizes that markets have declined. It, however, does not relate these declines to its logging level projections or in any way explain its continued reliance on projections that have proven inaccurate and whose underlying assumptions have been disproven. That failure violates NEPA. For further explanation of these issues, see the Plaintiff’s briefing in *Natural Resources Defense Council, et al. v. United States Forest Service, et al.*, No. J03-029 CV (JKS) (D. Alaska) (filed Dec. 9, 2003), which is incorporated by reference here.

A principal basis for the ASQ selected by the Alaska Regional Forester in the 1997 Tongass Plan was the volume of timber estimated as needed to satisfy the projections of market demand for Tongass timber over the planning cycle. *See* ROD for 1997 Tongass Plan at 25. These projections were based upon a draft report projecting market demand prepared by Pacific Northwest Station economists Brooks and Haynes.¹ This draft report projected a market demand ranging from a low scenario averaging 68 mmbf/year to a high scenario averaging 154 mmbf/year.

¹ Brooks and Haynes, *Timber Products Output and Timber Harvests in Alaska: Projections for 1997-2010* (May 15, 1997). This draft report is included in the TLMP planning record and incorporated into these comments by reference.

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The ROD for the 1997 Tongass Plan states that the demand projections contained in that draft are “for sawlogs suitable for producing lumber in Southeast Alaska mills.” See ROD for 1997 Tongass Plan at 25. This statement is incorrect. In fact, the projections encompassed both sawlogs and utility logs. This error led to an assumption in the Tongass Plan decision that an annual logging level of between 130 mmbf and 296 mmbf would be needed to satisfy the projections in the May 15 Brooks and Haynes draft. *Id.*

In adopting a plan, the Regional Forester was, among other things, seeking to provide sufficient timber to meet market demand for the planning cycle, under 16 U.S.C. § 539d. The erroneous interpretation of the May 15 Brooks and Haynes draft caused the Regional Forester to seek to provide a supply of timber that was significantly higher than the actual Brooks and Haynes projections. In so doing, the Forest Service allocated significantly more land for timber production than was necessary to meet the Brooks and Haynes projected market demand.

By using this erroneous interpretation to justify an ASQ that is nearly double the actual projections of market demand, the 1997 Tongass Plan allocated more land than necessary to logging. As a result, other multiple use objectives for National Forest lands on the Cleveland Peninsula, such as customary and traditional uses of wildlife and other resources, are unnecessarily harmed in violation of the agency’s obligations under NFMA. See 16 U.S.C. § 1604(e)(1), (2).

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Given that the ASQ adopted in the 1997 Tongass Plan is based on an erroneous interpretation, the Forest Service’s decision to adopt the 1997 Tongass Plan was arbitrary and violated the multiple use principles of the NFMA; thus, any project-level decision that “conforms” to that decision is also arbitrary and violates the principles of sound management mandated by the NFMA and TTRA.

This project should not be proposed at this time. There is sufficient timber along the existing road system, much of it already NEPA cleared, to meet market demand and there is no necessity to develop and offer the Emerald Bay Project now or in the foreseeable future.

The FEIS Fails to Adequately Address Socioeconomic Effects of the Proposed Sale

The section on Socioeconomics failed to address many of the socioeconomic dimensions of the effects of the proposed sales. The DSEIS recognizes that it must “insure that all environmental amenities and values are given appropriate consideration. DSEIS 3-51. The DSEIS fails to show that the Forest Service has completed an economic analysis of the proposed project. There is no attempt in the SDEIS to look at a full range of financial costs and benefits associated with the Emerald Bay Sale to determine the true costs and benefits to the public. The Forest Service is obligated to conduct a legitimate economic analysis of the potential impacts to forest resources.

Comb-9

The Forest Service needs to look at the full range of financial costs and benefits associated with the Emerald Bay Project so that readers and the public can ascertain the

monetary impacts of the Project on national and local taxpayers. The Emerald Bay Project FEIS fails to fully disclose the natural resource benefits associated with unlogged forests, and fully disclose and mitigate the direct, indirect, and cumulative socioeconomic costs of the project.

In addition to describing the financial costs and benefits of the project, the Forest Service needs to conduct an economic analysis of the project, defined as the overall costs and benefits to society as a whole. This economic analysis must include both market values (e.g., two-by-fours, as well as the dollar value of standing trees), as well as non-market values (e.g., scenery, wildlife habitat, and healthy watersheds) which may be more challenging to quantify.

The National Environmental Policy Act (NEPA), the Multiple-Use Sustained Yield Act (MUSYA), the Resource Planning Act (RPA), and the NFMA all include provisions requiring due consideration of non-market goods and services when evaluating management alternatives. Planning regulations developed by the Forest Service in response to the 1976 National Forest Management Act (NFMA) included an explicit management objective for the national forest to maximize net public benefits. *See* Loomis and Walsh (1992); Swanson and Loomis (1996). Net public benefits are defined as “the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not.” *See* Forest Service (1982). Thus, the legislative mandate is quite clear on the importance of conserving non-market resources.

Comb-9
cont.

Estimating net public benefits requires an economic analysis that accounts for the net economic benefits and costs generated by both the active and passive use of public resources. This analysis should be conducted from society's perspective and considers non-market goods and services, in addition to marketable commodities. Non-market benefits such as ecological services, recreation and passive use benefits have been recognized in the economic literature and as a result, the concept of the total economic value has evolved. *See, e.g.,* Randall and Stoll (1983); Peterson and Sorg (1987); Loomis and Walsh (1992); Costanza et al. (1997). Evaluating management alternatives using a total economic valuation framework is an appropriate endeavor for the agency to pursue. Unfortunately, there is no such economic analysis included in the SDEIS and, therefore, it is inadequate.

Section 102(B) of NEPA requires the Federal Government to “identify and develop methods and procedures . . . which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.” One method for examining the impact of a proposed action on environmental amenities and values is a cost benefit analysis.

Title 40, Code of Federal Regulations for NEPA (40 C.F.R. § 1502.23) indicates that “[f]or purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations.” (40 C.F.R. § 1502.23). However, Title 40 does NOT relieve the agency from completing an economic analysis that fully accounts for the impacts of proposed management alternative on non-commodity values because many of these

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impacts are quantifiable. See Morton (2000). The NEPA compliance manual describes quantitative impacts as impacts that can be measured. See Freeman et al. (1994). Economists have made great advances in developing methods to estimate the economic benefits generated from the production and conservation of non-commodity resources. Therefore, in addition to qualitative descriptions of all non-commodity benefits and costs, the decision documents must quantitatively estimate the benefits (costs) of conserving (damaging) non-market resources. Since many impacts can now be quantitatively estimated, they should be internalized into the economic analysis evaluating management alternatives as required by NEPA.

Haynes and Horne (1997) provide the following direction on non-commodity valuation for managers of public resources:

[T]imber values must be compared with societal values of other outputs from that same ecoregion. An ecoregion with high timber values relative to other ecoregions may also have recreation values that exceed its timber value. Thus, the appropriate course for managers is to plan actions with the total market basket of values for a given ecoregion in mind.

The economic benefits of wildland range from the tangible and immediate, such as the enhanced value of real estate in proximity to protected areas, to the esoteric and the distant, such as the value of preserving species for the potential use and enjoyment of future generations. Some of these benefits are reflected in markets and can be quantified as prices. Others are not traded in formal markets and have no price. That does not mean, however, that they have no value, and all such values must be considered in assessing the economic importance of wild land.

Ecosystem Service Values:

Ecosystem services are those things provided by nature that man would otherwise need to provide for himself. They include air and water filtration, climate regulation, and maintenance of biodiversity, scenic beauty and other benefits.

- High quality water is just one example of the services we get "for free" from protected landscapes. High quality water is particularly valuable in Alaska for fisheries. Indeed, one of the principal purposes of the National Forests is to protect water supplies. The U.S Forest Service estimates that the National Forests supply 6% of the runoff east of the Mississippi River and 33% of the runoff in the west. At a very minimum, this water is worth \$3.7 billion annually (Sedell, et al, 2000).
- Carbon Sequestration is another. Mature fully stocked forests sequester carbon to help slow the process of global warming. With carbon credits already exchanging for between \$1 and \$20 per ton around the world, carbon credits could be worth \$300 to \$600 per acre (Walls 1999).
- In a more recent study focused on wilderness in the lower 48 states, Loomis and Richardson estimate \$150 per acre per year for carbon storage, climate regulation and waste treatment (filtering air and water).

Comb-9
cont.

Other economic values of wildlands that should be assessed include recreation and 'passive use values'.

Recreation Values: A National Sporting Goods Association survey estimates that participation in wilderness camping and hiking by residents increased 158.3 percent from 1990 to 1998, reaching 630 thousand visitor days of backpacking and 460 thousand visitor days of hiking in 1998. Clearly recreation values are increasing and the impacts on them need to be addressed in a legitimate economic analysis.

Passive Use Values: Passive use values include option value (what it's worth to preserve the option of future use), bequest value (what it's worth to pass a resource unimpaired to future generations) and existence value (what it's worth to preserve a resource that one has no expectation of using in the future). For example, Loomis and Richardson estimate the passive use value of wilderness in the eastern U.S. as about \$4/acre/year. Again, this value is produced before the first hiker puts on her backpack. In their economic assessment of the Interior Columbia River Basin, Haynes and Horne estimated that the existence of roadless areas accounts for 47% of the value to society provided by public lands in the Columbia Basin, while recreation provides 41%, timber 11%, and range 1%.

Comb-9
cont.

In order for the Forest Service to complete a legitimate cost/benefit analysis of the Emerald Bay Sale and other sales in roadless areas, the Forest Service needs to consider the full range of economic benefits of unlogged forests or wildlands. Issues such as effects of wildlands on ecosystem service values and passive use, and recreation values, among others, must be included in an analysis.

Because the DSEIS fails to measure accurately the financial costs of timber sales, and fails to analyze the effects of the Emerald Bay project, it fails to give the public an accurate picture of the true costs of the project. The public, and indeed the agency, is unable to determine how the financial costs and benefits of the sale (cost of the sale to the government, revenues and potential employment) balance against the socioeconomic costs (positive and passive use, including non-market values). Neither the agency nor the public is therefore able to discern the economic value of the project. The DSEIS is therefore inadequate and we request that the Forest Service conduct a more accurate economic analysis, in accordance with NEPA, MUSYA, RPA and NFMA in the final EIS.

The SDEIS Fails to Respond to Comments on the Previous Emerald Bay DEIS in Regards to Species Composition

The following comments are from the Interested Party comments submitted by the Juneau group of the Sierra Club on the previous Emerald Bay FEIS.

Species Composition

Neither the DEIS or the FEIS included adequate information on the species composition of the Cleveland Peninsula roadless area, the project area, or the sale units. Detailed information for the sale units has only come to the attention of commentators since the ROD was issued. This is in spite of the Forest Service having cruise run data that included species composition information quite early in the process. Indeed, some if not all

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of the field work that gathered the information used in the cruise data run completed on 5-25-2000 (see exhibit 2, a print out of BMP 22 from the Project Record CD's silviculture folder) was, also according to the project record, performed in 1999 (See document 091100 Tim in the Project Record CD's Silviculture file). NEPA and TLUMP require that the Forest Service provide commentators and decision makers with timely quality information (NEPA 1500.1(b)) and that this information include an accurate description of existing conditions, the desired future condition of the project area, and the effects of the project on those conditions (TLUMP TIM 111-2 1D). Because of the high value of Alaska Yellow Cedar (AYC) and Western Red Cedar (WRC) in comparison to other species, the rarity of their occurrence on the Tongass, the problem of AYC decline, difficulties in successfully regenerating cedar stocks, and the economic issues surrounding the export of AYC and WRC without instate processing, the Emerald Bay ROD is deficient in the information it has provided and in its level of analysis

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cont.

Having requested that information on species composition be supplied in previous comments, we are at a loss as to why the F.S. has chosen not to supply it in the Emerald Bay SDEIS. Virtually all other timber sale NEPA documents include this information. In the case of Emerald Bay this information is particularly important as the previous Emerald Bay sale layout apparently had a large amount of AYC and WRC. As these species are commonly exported un-processed their proportion of the total sale volume is directly related to job creation. We request the Forest Service supply the most current information it has on the species composition for the action alternatives of the Emerald Bay Timber Sale.

The DSEIS Does Not Disclose Impacts to Wilderness

The Emerald Bay Timber Sale Final Environmental Impact Statement published in October 2001 was reversed on appeal in February 2002 because the FEIS failed to adequately consider the potential effects of the sale on roadless area values and wilderness characteristics. DSEIS 1-1; Emerald Bay Record of Decision and Final Environmental Impact Statement Appeal Decision, Feb. 13, 2002 (Appeal Decision), at 4. The Draft Supplemental Environmental Impact Statement purports to address these deficiencies. Curiously, however, the DSEIS fails to analyze the potential impacts of the project on wilderness characteristics. The final EIS should include a thorough analysis of the potential impacts of the proposed action on the wilderness characteristics of the Cleveland Roadless Area.

Comb-11

The DSEIS does mention wilderness and includes excerpts of the Tongass Land Management Plan Revision Final Supplemental Environmental Impact Statement (TLMP SEIS) description of the wilderness characteristics of the Cleveland Inventoried Roadless Area. DSEIS 3-34—42. However, the DSEIS includes no analysis of the impacts of the proposed action on the wilderness characteristics or eligibility of the area. The DSEIS therefore fails to satisfy the Forest Service's obligations under NEPA to consider the environmental impacts of its proposed

action, and it also fails to respond to the direction of the Appeal Deciding Officer who directed the Forest Service to prepare a supplemental impact statement.

The Emerald Bay Timber Sale FEIS was reversed in part because the Appeal Deciding Officer did not find an adequate discussion of the likely impacts of the timber sale on the project area's roadless characteristics, and "whether these potential effects may significantly affect the wilderness character of the Cleveland Inventoried Roadless Area and its eligibility for inclusion in the National Wilderness Preservation System." (NWPS) Appeal Decision at 4. The Appeal Decision directed the Forest Service to prepare a supplement to the FEIS to address this and other deficiencies of the analysis. *Id.* The Forest Service did not do this. Instead, the Forest Service added a brief descriptive section summarizing elements of the TLMP SEIS analysis of the Cleveland Roadless Area. The Forest Service did not examine what the potential effect of the Emerald Bay Timber Sale would be on the area's eligibility for inclusion in the NWPS.

With a Wilderness Attributes Rating System (WARS) rating of 25 (out of a possible 28), the Cleveland Roadless Area is an excellent candidate for inclusion in the NWPS. TLMP SEIS C-2 536; FEIS 3-33. Although the FEIS discloses the WARS rating, it suggests, misleadingly, that the rating reflects the area's ability to absorb development such as the instant project. FEIS 3-33. The FEIS states:

During the 1989 roadless evaluation effort, the Cleveland Roadless Area was ranked at 23 points out of a possible 28 points under the Wilderness Attribute Rating System (WARS). This rating was re-evaluated and was given a score of 25 points in the Tongass Land Management Plan Revision Final Supplemental Environmental Impact Statement for Roadless Area Evaluation and Wilderness Recommendations (2003 SEIS). This score is more reflective of the large size of the area and its ability to absorb the various developments and activities. FEIS 3-33.

Comb-11
cont.

This statement appears to assert that the high WARS rating weighs in favor of development projects like the timber sale at issue because of its large size. In fact, this is not at all the case; the WARS rating reflects the area's high suitability for wilderness designation and weighs against projects such as the Emerald Bay Timber Sale. The quote above is a partial excerpt of a statement in the TLMP SEIS. That statement is that the rating "is more reflective of the large size of the area and its ability to absorb the various developments and activities *associated with the area.*" (italics not in original) TLMP SEIS C2-540. Those developments and activities include small pockets of mining activity, Coast Guard activity, three public recreation cabins, hunting and fishing, hiking, boating, camping, and subsistence. *Id.* at C2-538. They do not include timber harvest. As written, the FEIS asserts that the WARS rating demonstrates the suitability of the Cleveland Roadless Area for timber harvest. Not only is this an inaccurate reflection of the TLMP SEIS, it is also a distortion of the Wilderness Area Rating System. A high rating suggests a high quality of wilderness, as defined in the Wilderness Act. TLMP SEIS C1-15. The rating measures primarily natural integrity, apparent naturalness, outstanding opportunity for solitude, and primitive recreation opportunities. The final EIS should reflect this.

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The DSEIS's discussion of the potential impact of the proposed action is limited to a summary of the TLMP SEIS examination of the Cleveland Roadless Area. FEIS 3-34—42. It includes no site-specific analysis or discussion of the effects of this project on the area's wilderness potential. This tiering to the TLMP SEIS is inappropriate and fails to satisfy the Forest Service's obligations under NEPA. Under NEPA, agencies may "tier their environmental impact statements to eliminate repetitive discussions of the same issues," and a site-specific EIS "need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action." 40 C.F.R. § 1502.20 The DSEIS indeed summarizes the issues discussed in the TLMP SEIS, but never concentrates on the issues specific to the Emerald Bay Timber Sale. For example, what effect will the sale have on the suitability of the area for wilderness designation? What impact will it have on the various components of the WARS rating of the Cleveland Roadless Area, and how diminished will the roadless area's rating be as a result of this sale? Would the road building and timber harvest impact the wilderness and roadless values of the roadless areas and wilderness contiguous to the Cleveland Roadless Area, and how?

Comb-11
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The DSEIS addresses none of these questions. In fact, it doesn't even purport to analyze the impacts of the Emerald Bay Timber Sale on wilderness. This must be rectified in the FEIS, or the document will fail to satisfy NEPA.

The SDEIS Violates NEPA by Failing to Take a Hard Look at Impacts to Fish and Wildlife

NEPA requires environmental impact statements be analytical rather than encyclopedic. 40 C.F.R. § 1502.2. The sections of the Emerald Bay SDEIS that address biodiversity and wildlife are largely devoid of any analysis and clearly do not meet the hard-look standard required by NEPA. Rather, the SDEIS offers general statements about "possible" effects and "some risk" to wildlife and biodiversity, providing no explanation about the vagueness and generality of these statements. Such general analysis does not constitute a "hard look" absent justification regarding why more definitive information could not be provided. See *Inland Empire Pub. Lands Council v. U.S. Forest Service*, 88 F.3d 754, 764 (9th Cir. 1996.)

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For example, while the document notes on several occasions that the Spacious Bay-Ernest Sound area has recently been identified by the State of Alaska as a "bio-geographical pinch point" for deer, brown bear and wolf, the DSEIS fails to discuss the significance of this finding and more or less ignores the implications regarding the importance of this area.

The SDEIS Fails to Adequately Assess Impacts to the Biological Diversity of the Project Area

One of the issues identified in the SDEIS as being updated since the 2001 SDEIS is the disclosure of effects of the alternatives on coarse canopy forested habitat. (SDEIS 1-2) Despite this claim, we see little new analysis of value presented in the SDEIS on this issue. The timber standards and guidelines in TLMP require the Forest Service to gather, maintain, and evaluate certain timber resource information when preparing timber sales. (See TLMP: TIM112, TIM111-2) The SDEIS fails to adequately describe the natural vegetation in the project area or

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evaluate the direct, indirect or cumulative effects of logging. This includes the failure to describe desired conditions in terms of structural attributes and consideration of regenerating and maintaining minor species.

Since the required description of the structural attributes is intended to facilitate development of appropriate silvicultural prescriptions as a part of project planning, the lack of such a description in the SDEIS violates NEPA. Without this information, the public and decisionmaker cannot adequately evaluate the effects of this project on wildlife, diversity, or forest structure.

We request that the following information be included and fully disclosed:

1. Data on the number and sizes of old-growth patches in 1954, currently, and for each action alternative -- broken down by Volume Class.
2. By alternative and by VCU, how many acres of interior forest habitat will be lost in each patch size class, after allowing for edge effect?
3. How many acres of each Volume Class of forest (classes 4 through 7) would there be in each patch size, by VCU, under each alternative?
4. A list of remaining old-growth patches for each alternative is needed. The lists would show for each patch: the gross acreage, the total interior forest acreage, and the interior forest acreage broken down by Volume Class (4 to 7).

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cont.

In addition, it is apparent that an effect of any of the action alternatives would be to create more 'micro-patches' than currently exist in the Project Area. Especially with small patches, it is obvious that the effective size of the patch can be significantly less than its gross size, if edge effect and the remaining acres with interior forest conditions are taken into account. The same principal can reduce the effectiveness of larger patches that are more linear than circular. This raises concerns that are not addressed in the EIS.

The requested information is necessary for the "rigorous" exploration and objective evaluation of all alternatives and the "scientific and analytical basis for comparison" of alternatives, as required by NEPA. It is also necessary for a "full and fair discussion of significant environmental impacts" and to "disclose and discuss ... all major points of view on the environmental impacts."

The SDEIS Violates NEPA, NFMA and the TLMP by Failing to Protect Wildlife Viability, Failing to Disclose that Incomplete or Unavailable Information exists, and by Failing to Reveal Scientific Opposition to the TLMP Wildlife Viability Strategy

The NFMA requires the Forest Service to manage fish and wildlife habitat "to maintain viable populations of existing native and desired non-native vertebrate species" found on the Tongass. 36 C.F.R. § 219.19 (2000). Further, in formulating, adopting, and implementing the Tongass Plan, the Forest Service was required by its NFMA regulations in effect at the time, 36 C.F.R. §

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219.27 (2000), to "[p]rovide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species."

In discussing impacts to biodiversity and wildlife, the Emerald Bay SDEIS claims that the Forest Plan contains a comprehensive conservation strategy to assure long-term species viability. The SDEIS fails to recognize there has been significant scientific opposition over the viable population strategy of the 1997 TLMP. 40 C.F.R. § 1502.22 requires the Agency to disclose when there is incomplete or unavailable information. Further, "An EIS must . . . candidly disclose the risks and any scientific uncertainty. It must also disclose responsible scientific opinion in opposition to the proposed action, and make a good faith, reasoned response to it." See *Seattle Audubon Society v. Lyons*, 871 F. Supp. 1291, 1318 (W.D. Wash. 1994); See also *Sierra Club v Bosworth* 199 F. Supp. 2d 971 (N.D. Ca. 2002.)

Scientific panels convened by the Forest Service during the Tongass Land Management Planning process evaluated the alternatives presented in the 1996 Revised Supplemental Draft EIS (RSDEIS) for the Tongass Plan for their effects on individual wildlife species and groups of related species. Several of these panels rated alternatives similar to the one ultimately adopted in 1997 as having a relatively low likelihood of maintaining viable populations of the species well distributed throughout the Tongass. In fact, in 1996, the Scientific Peer Review Committee on Tongass Forest planning concluded that "logging and related activities on the Tongass National Forest pose a significant risk to the viability of populations of several wildlife species associated with old-growth."

The Forest Service also convened scientific panels to evaluate the alternatives in the Tongass Plan's SDEIS for their impacts on wildlife viability. Once again, several of these panels rated the preferred and similar alternatives as having a relatively low likelihood of maintaining viable populations of the species well distributed throughout the Tongass. The Forest Service made some adjustments to the SDEIS's preferred alternative prior to adopting it as the Tongass Plan in the 1997 Record of Decision. These adjustments did not, however, remedy the central defects identified by scientists and the public in the preferred alternative.

In a 1997 statement from the scientific Panel concerning the adequacy of conservation measures for vertebrate species in the Tongass National Forest Land Management Plan of record the committee concluded, "We believe that the plan adopted in May 1997 will not ensure viable, well distributed populations of wildlife species adapted to Old-growth forest on the Tongass National Forest."

In regards to the reserve system, the Committee found the reserves of TLMP inadequate.

"The Forest Service has accepted, in principle, the need for habitat reserves as part of its strategy for conservation of wildlife on the Tongass. The agency continues, however, to rely on an inadequate reserve system. TLMP documents defend this approach in large measure by pointing to the absolute number of acres that will not be directly logged. This analysis ignores the adverse consequences of fragmenting habitat. Highly fragmented habitat may provide little or no benefit for many wildlife

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cont.

species. ... In general, the reserves are not appropriately designed in size and location, and do not preserve the remaining large blocks of high quality habitat on the Tongass”

To ensure the viability of all native vertebrate species, the TLMP Scientific Peer Review Committee specifically recommended:

- All remaining large blocks of old-growth forest be protected.
- Any further fragmentation of existing large blocks of high volume Old growth should be prevented. At a minimum the three largest patches of Old growth should be protected in each ecological province.
- The Forest’s remaining pristine watersheds should be protected.

Based upon the scientific panel’s assessment of the 1997 TLMP it is clear the plan does not meet the NFMA requirement, and those adopted in the 1997 TLMP, that the forest plan provide “for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species.” (See 36 CFR 219.27 (a)(6)) Therefore, it is illegal for the Emerald Bay SDEIS to tier to and depend upon the TLMP as adequate to address wildlife viability requirements of the NFMA. The Emerald Bay SDEIS also violates the NEPA as they fail to discuss the strong opposition and scientific uncertainty regarding the wildlife viability strategy of the 1997 TLMP.

When similar issues have been raised in the context of other timber sales on the Tongass, the response is always, “this is a forest-wide planning issue and therefore it is out of the scope of this project.” While it is appropriate under certain circumstances for NEPA documents to tier to other documents, such as a programmatic plan, “Nothing in the tiering regulations suggests that the existence of a programmatic EIS for a forest plan obviates the need for any future project-specific EIS, without regard to the nature or magnitude of a project.” *Blue Mts. Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214 (9th Cir. 1998.)

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cont.

The Emerald Bay SDEIS discussion of wildlife viability applies the broad-brush general provisions of the TLMP wildlife strategy to a NEPA document designed to approve specific plans of operations. In other words, since the 1997 TLMP did not address site-specific impacts of the Emerald Bay project of fish and wildlife populations, including wildlife viability, they must be addressed in the Emerald Bay NEPA documentation. It is inappropriate for the Forest Service to disregard our concerns as they are raised in the context of a project that seeks to implement the very viability strategy we are concerned about. The Emerald Bay Timber Sale contributes to concerns about wildlife viability on both a local and landscape scale. Since the Emerald Bay project seeks to implement that strategy on a site-specific basis, and because the SDEIS explicitly relies on the 1997 TLMP viability strategy, the Forest Service has a clear obligation to disclose the uncertainty regarding the wildlife viability strategy and the clear scientific opposition to it. We request this information be provided.

The SDEIS Fails to Consider MIS as Required by the NFMA and the TLMP

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NFMA requires that the Forest Service identify Indicator Species, monitor their population trends, and evaluate each project alternative in terms of the impact on both Indicator Species habitat and Indicator Species populations. *Idaho Sporting Cong., Inc. v. Rittenhouse*, 305 F.3d 957, 971- 74 (9th Cir. 2002) (Emphasis added). Once an indicator species is selected, the Service is obligated to evaluate planning alternatives for projects that affect that species "in terms of both amount and quality of habitat and of animal population trends of the management indicator species." (36 C.F.R. § 219.19(a)(2); *Inland Empire Pub. Lands Council v. United States Forest Serv.*, 88 F.3d 754.) The TLMP further specifically requires that interagency habitat capability models be developed for any or all of the management indicators to systematically assess the impacts of proposed projects during project level analysis. (TLMP 4-112) To date this has not occurred for the majority of the Tongass MIS species. Acquisition and analysis of actual and trend population data for MIS is required by law, yet the Tongass has continually failed to meet its responsibilities since the implementation of the 1997 TLMP.

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The SDEIS fails to include baseline data to enable population trends for management indicator species (MIS) to be monitored as required by TLMP. The document also fails to discuss impacts to all the MIS species identified in the 1997 TLMP. No baseline data are included to enable population trends for management indicator species to be monitored, in compliance with TLMP pp. 6-14 (requiring comparison of population trends with habitat changes) and 6-3 (requiring monitoring, including effectiveness and validation monitoring, in connection with projects "whenever possible").

The SDEIS Fails to Adequately Assess Impacts to Raptors And Other Birds as Required by Law

- 1) The SDEIS fails to properly analyze impacts to the Queen Charlotte goshawk and surveys to locate this species were inadequate.**

The discussion of possible impacts from the Emerald Bay sale in regards to the sensitive Queen Charlotte Goshawk is grossly inadequate. The SDEIS dismisses any impacts to the goshawk based on a failure to identify any Goshawk nests in the project area during limited survey effort. The section does not provide any pertinent information regarding the findings of these surveys. It is unclear whether goshawks are using the project area for activities besides nesting including foraging and winter habitat use (reliance for winter prey availability) limiting factors on goshawks in SE Alaska. The lack of information available in the SDEIS regarding forest structure at present as well as post-harvest, makes it impossible to evaluate the impacts on potential goshawk habitat. Further, the SDEIS also fails to discuss the impacts of road construction and helicopter logging, which can deter goshawk nesting and foraging in impacted areas.

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In reviewing the Biological Evaluation and Biological Assessment for the Emerald Bay Project (presented in Appendix B) we noticed several serious flaws. First, the surveys done are grossly inadequate. Goshawk surveys were completed in 7 days over a course of 2 years (1992 and 1998) and for 3 days in 2000. Additional surveys should be conducted to guarantee a nesting pair

has not moved into the area since 2000. Further, the surveys methods employed (those issued in June 1992) do not reflect the best scientific method as required by TLMP.

2) No surveys were performed to locate herons and raptors as required by law

TLMP requires project level inventories be conducted to identify heron rookeries and raptor nesting habitat using the most recent inventory protocols.² The Biological Evaluation and Assessment for the Emerald Bay Project make no mention of such surveys being done as required by law.

Furthermore, the 2000 BA/BE clearly states that reports of sharp-shinned hawks and red-tailed hawks found during the limited goshawk surveys “were not normally pursued”. (Emerald Bay 2000 BA/BE at 4). Oddly, this incriminating statement has been removed from the newer BA/BE issued for this project in October 2003. Even had raptor surveys been conducted simultaneously with goshawk surveys, this would not fulfill the intent or requirements behind the TLMP standard. For example, owls that respond to vocalization calls in late spring or summer, when Goshawk surveys are performed, are non-breeders; hence it will not be possible to locate nests as intended by TLMP. It is clear that no project level surveys were performed for herons or raptors as required by law.

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Despite the failure to perform raptor surveys it does appear a red tail hawk nest has been located in unit 10 (SDEIS B-5). The Unit card does make note of the presence of this nest, but fails to depict the nest location or necessary buffer. Further, the SDEIS fails to discuss how helicopter noise may impact a bird nesting in such close proximity to harvest activity.

The SDEIS also fails to discuss how helicopter noise, road construction and the LTF may impact the three known eagle nests near Emerald Bay.

The SDEIS Fails To Adequately Analyze Impacts on Small Mammals

The project analysis fails to address impacts of the project to small mammal populations. During the TLMP revision process, the Viability panel results showed that small mammals were at extreme risk from any proposed action alternatives. The survey standard provided for in TLMP is too vague, and results in the site-specific problems we find in Emerald Bay. The Emerald Bay SDEIS is devoid of any analysis or data regarding small mammal populations especially lesser known old growth dependent species, such as the brown creeper, Keen’s myotis and northern flying squirrel in the project area.

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Lastly, under the TLMP, the Forest Service is required to evaluate the existence of rare or endemic terrestrial mammals that may represent unique populations with restricted ranges. No evaluation is provided in the SDEIS or in the BA/BE for this project.

The SDEIS fails to Adequately Consider Impacts to the American Marten

² The relevant TLMP S&G for Herons and Raptor Nests is:

- A. *provide for protection of raptor (hawk and owl) nesting habitat and great blue heron rookeries*
 1. Conduct project level inventories to identify heron rookeries and raptor nesting habitat using the most recent inventory protocols.

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According to the SDEIS marten populations are considered moderate in the project area (SDEIS 3-79). However, the document fails to define what moderate means in this sense, or what estimated population levels are.

The SDEIS predicts a 12% change in marten habitat in the VCU. While this is important, it is useful for the reader to understand what change will occur both within the project area, as well as within the non-OGR portion of the project area.

Under the TLMP the objective concerning American Marten is "to manage high value marten habitats in areas of timber harvest in higher risk biogeographic provinces to retain features of forest stand structure important to marten habitat use." (TLMP, 4-118, XVI.A.2) The Emerald Bay project area falls under one of these higher risk biogeographic provinces for marten.

The SDEIS states that appropriate marten standards and guidelines will be applied. However, the document should have presented a site-specific patch size and fragmentation analyses to further assess impacts to marten and assure that TLMP approach is sufficient in this project area. Marten prefer habitat patches over 180 acres in size, patches of less than 10 acres are not used. Since the Emerald Bay Project is within a high-risk biogeographic province for marten, the analysis of patch size and fragmentation of habitat is of great concern, and is necessary to provide for the fair, informed and rigorous basis for decision making that is required by NEPA. This analysis is absent in the SDEIS.

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Further, we are disturbed by the SDEIS erroneously relying upon the TLMP to protect marten viability and of the failure to include new critical information from the scientific literature regarding this species. Five years after the TLMP was adopted it is clear that several assumptions made in designing TLMP in terms of marten viability are either unsupported or just plain wrong. (See Robertson et al 2000) The Forest Service should be using this new information and noting where scientific uncertainty exists, rather than just ignoring it to suit their needs.

Lastly, we are concerned about the reliance of the SDEIS on unproven marten modeling methods and of the failure to present the worst-case analysis that was obtained from the one model that is generally accepted.

The SDEIS Fails to Adequately Address Concerns Regarding Protection for the Alexander Archipelago wolf

The SDEIS is grossly inadequate in its analysis of the impacts to the Alexander Archipelago wolf. No data is supplied regarding the number of individuals, pack size or denning habits within the Emerald Bay Project areas. The public has no way to know whether the Forest Service plans to follow the standards and guidelines laid out in TLMP for sustaining wolf populations. (Please note, we believe the standards and guidelines under the TLMP to be inadequate to protect the wolf.) Of particular concern is the requirement to avoid activities that may cause abandonment of wolf dens. It is impossible for the public to discern whether dens will be avoided when information is not provided on whether dens even exist. Further the SDEIS fails to analyze how wolves in the vicinity may be impacted from helicopter noise, a particular concern for a denning female.

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It is noted that 19 wolves were harvested from the Cleveland Peninsula during 2003/2004, but no information regarding historical harvest levels is provided. (SDEIS 3-86) Further, the SDEIS fails to make any mention of whether surveys for wolf dens have been conducted in the area or any indications that denning activity have been reported.

**The SDEIS Fails to Adequately Analyze Impacts to Brown Bear
Foraging Sites and Dens as Required by TLMP**

The 1997 TLMP recognized the importance of protecting brown bear habitat and populations across the forest. Specifically, the plan requires that evaluation of important brown bear foraging sites occur during project specific planning. (TLMP 4-114) Where such areas are identified a 500-foot buffer is to be implemented to provide cover for feeding bears and to reduce human/bear conflicts. *Id.* The required 500-foot buffer is in addition to the buffers already provided for the riparian, beach and estuary fringes under TLMP. The impetus for this additional buffer was the recognition that the TLMP riparian buffers were inadequate to protect brown bears. The 1997 TLMP Review found that none of the Draft TLMP alternatives provided sufficient forest cover to maintain important brown bear feeding and loafing areas. Further, the panelists recommended a minimum 500-foot no timber harvest or road construction buffer around important bear feeding habitat. This recommendation was based on the need to provide habitat to sustain viable and well-distributed brown bear populations across the Tongass.

The TLMP recognizes that brown bear buffers “may be especially important on Class I anadromous fish streams within the Moderate Gradient/Mixed Control and Flood Plain process groups...where a large amount of bear feeding activity occurs” The SDEIS fails to provide adequate information for the public to access which units may fall into this category. Further, while these areas due to their proximity to Class I MM process group streams, are singled out by TLMP for particular care, TLMP also requires evaluation of all anadromous streams for important brown bear foraging sites.

TLMP specifically requires that the FS consult with the Alaska Department of Fish and Game (ADF&G) to identify and manage important brown bear foraging sites. In a 1998 memo issued by then Forest Supervisor Bradley Powell further elaboration on the process of identifying important brown bear foraging sites is provided. This process included the following direction:

1. Identify Class I streams supporting spawning salmon (salmon streams) within the analysis area;
2. Of these salmon streams, delineate those stream segments classified as the Moderate Gradient/Mixed Control and Flood Plain process groups.
3. Apply the TLMP Riparian Standards and Guidelines to the salmon streams and identify segments that are protected by a 500' wide or greater protective buffer on both sides of the salmon stream.
4. Along segments of salmon streams not protected in 3. above, visit the area looking for evidence of brown bear use. If time, funding or other factors limit the

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time in the field, focus work first on the Moderate Gradient/Mixed Control and Flood Plain process group reaches of the stream.

a. Fish or wildlife biologists with experience in brown bear habitat should visit and walk salmon spawning habitats along streams after the peak of the salmon run.

b. Examine the number of brown bear trails and resting sites along a given length of stream. Areas that are important to brown bears will have extensive trails systems often connecting the stream to nearby hills and bluffs overlooking the lower elevation riparian zone. The understory vegetation in these areas will usually be trampled by extensive bear activity.

5. Record the field observations on aerial photos and maps. If ADF&G personnel did not take part in the fieldwork, consult with the local Habitat and/or Wildlife Conservation biologist to see if they can provide any additional information. Consultation with ADF&G and others will be especially important for project areas on the mainland.

The SDEIS notes representatives from the USFS, ADF&G and the USFWS walked the road location through the OGR in 2000 and that no important late feeding sites were identified. (SDEIS 3-84). This is problematic for several reasons. First, the road design from 2000 has been altered and now is located in more biologically productive forest and closer to the creek. Second, the OGR portion of the road only accounts for 2.2 of the more than 6 miles of road, leaving a large portion of the road course unexamined by this interagency group. Lastly, it does not appear that any of the actual harvest units were examined to determine whether important brown bear foraging or denning areas are present. For these reasons we do not believe the consultation requirements of the TPIT in regards to brown bears have been met.

Despite the clear inadequacies of the aforementioned survey effort, it does appear biologists from both the ADF&G and the USFWS have raised more recent concerns regarding the importance of the area for bear foraging. (Id.) Specifically, they noted that Emerald Creek appears to fit the criteria 4b in TPIT. Further, numerous bear trails have been located over recent years around the Emerald Creek area, a portion of Unit 12 falls within a brown bear foraging buffer, and the road will cross several streams. It is unclear how the road and LTF may impact important bear foraging areas in the estuary portion of the project. The document provides no indication that appropriate buffers will be applied as to important bear foraging areas as explained above. Instead, the SDEIS makes the unsupported statement that "no effects on the availability of foraging habitat for brown bears are expected." (SDEIS 3-84) . We request that full consultation of all harvest units and the entire road be completed and that all areas that required additional buffers be identified and protected.

Lastly, SDEIS also fails to adequately discuss other impacts of this project on bears including increased hunter access on bears- both in terms of direct take as well as a reduction in prey base and how helicopter noise and human presence may impact bears in the area.

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cont.

The SDEIS Fails to Adequately Analyze Impacts to Mountain Goats

Because of concerns of over-hunting and potential extirpation, the ADF&G has closed the area to goat hunting. The SDEIS fails to analyze the large impact development and increased access may have on this population of great concern. The proposed alternative B would destroy 122 acres of escape terrain for this species and 11% of high-use area would be lost due to harvest. This is in direct contrast to the TLMP requirement that important goat winter habitat capability be maintained. (TLMP 4-117) although it is somewhat difficult to access since it does not appear that the interagency mountain goat habitat model was used to make this determination. Of the action alternatives, the proposed alternative B would maintain the least amount of important winter habitat.

Further, we are very concerned that mobility of goats in the area would be lost. Again TLMP clearly requires travel corridors between important seasonal sites be identified and maintained. The proposed alternative allows for harvest along the southern part of the eastern boundary- which defines one of two low elevation travel paths.

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The SDEIS fails to discuss the potential impacts of goats due to noise disturbance from helicopter traffic, stating instead that a 1,500-foot buffer would be put in place. Further, the document dismisses the risk of increased hunting due to the current closure. The Forest Service appears to be selectively choosing which standards and guidelines it wishes to apply in the context of goat protection. For the few it does choose to adopt, it appears the agency is using these as substitute for the hard-look analysis required by the NEPA.

Deer Modeling in the SDEIS Violates NEPA and Misinforms the Public and the Forest Service

This section presents three broadly different analyses of use of the deer model in the Emerald Bay project, each of which shows gross failings of either the deer model generally or its application to this project. Because of these failures, the project area's present and post-project carrying capacities for deer are overestimated in the Emerald Bay SDEIS. In brief:

- Analysis No.1 shows that the instructions that are contained in the deer model were not followed, causing two modeling multipliers that apply to the Emerald Bay project to not be utilized correctly or at all.
- Analysis No.2 shows that the deer model that was employed in this project is invalid because it uses a dataset that has poor correlation to habitat characteristics, because has in truth not been scientifically verified, and because its credentials were established through a fraudulent process.
- Analysis No.3 shows that the deer analysis in the Emerald Bay FEIS relies almost entirely on modeling, despite well-established, significant faults with this kind of model which suggest that additional methods of impact analysis should have been employed.

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Each of these analyses show, as do all of them in combination, that discussions in the SDEIS are fundamentally flawed concerning impacts on deer, wolves, and subsistence and sport hunting. As a result, a second SDEIS is needed to fulfill the Forest Service's obligations under NEPA and ANILCA. Another option is to simply drop the Emerald Bay project from further consideration – a relevant choice since the Forest Service considered preparing the SDEIS a “third priority” anyway. (“This Supplemental EIS is a third-priority project,” found in Meeting Record for Big NEPA, September 12, 2002, in the Gravina Island project planning record.)

Issues with deer modeling and its effects on other wildlife related issues were raised by the Sitka Conservation Society (SCS) in an Interested Party letter dated January 14, 2002, following up on the organization's appeal of Emerald Bay FEIS and ROD. The Appeal Reviewing Officer did not review these issues, and they have not been analyzed in this SDEIS either. We contend that a valid decision cannot be made on this project without in-depth analyses of the points that have been raised and without related corrections and updates to the environmental impact statement.

Analysis #1: The Deer Model Was Improperly Applied Because Its Instructions Were Not Followed.

The deer model used in the Emerald Bay FEIS (the 1997 TLMP deer model) is included in the planning record and is an Excel spreadsheet. This spreadsheet contains a worksheet titled “Instructions.” The Emerald Bay planning team did not follow two elements of the instructions. Accordingly, the results of the model are in error, as are the several sections of the SDEIS and earlier FEIS that rely upon the model's results.

The Instructions worksheet consists of a page of text and has three sections: “Purposes,” “Instructions,” and “Background and Assumptions.” The latter section contains additional instructions that were not followed. At least one error was caused by this oversight.

THE FIRST ERROR: The Background and Assumptions section of the Instructions worksheet has a paragraph labeled “Predation.” It begins, “Where wolves are present, habitat scores are reduced by 36% to account for the influence of predation on the number of deer available to hunters.” While the phrase “are reduced by 36%” may at first seem to indicate that the model does this automatically, the last two sentences of the paragraph clearly establish that this factor must be manually applied after the model is run:

“This Spreadsheet does not apply the 36% wolf factor. This can be easily done by multiplying results by .64.” [The emphasis in bold is original.]

Wolves are present in the Emerald Bay project area, and the .64 multiplier therefore should have been applied to the model results, for purposes of estimating the population of deer available for subsistence and sport hunting, but this was not done. In fact, in discussing the deer model the SDEIS explicitly states, “for the Emerald Bay project, predation was not included as a factor.” (SDEIS, 3-79) This appears to be a clear failure in application of the model, yet the SDEIS offers no explanation of that simple statement.

THE SECOND ERROR: The "Background and Assumptions" section of the model Instructions has a paragraph labeled "Carrying Capacity Multiplier." While this paragraph notes that this deer model spreadsheet incorporates a 100 deer per square mile carrying factor multiplier, it also states:

"Currently, project-level planning efforts select a multiplier that appears to work the best for their study area in consultation with ADF&G."

The deer model used for the Emerald Bay project (the spreadsheet cited above) uses a multiplier of 100 deer per square mile. The SDEIS does not reveal whether consultation required by the instructions was made; however, we doubt that it was because this has not been done for other projects. In at least one case, the Gravina Island timber sales project, the State's recommendation was for a far lower multiplier of only 35 deer per square mile. For that project, the State's recommendation was made in its ACMP consistency review, apparently because the Forest Service had not made the consultation. The Forest Service then completely ignored the State's recommendation.

Certainly, circumstances for deer differ between Gravina Island and Emerald Bay; however, the Gravina case indicates that a tremendous reduction (in that case by a factor of about three) may sometimes be necessary in the carrying capacity ascribed by the deer model for an HSI (habitat suitability index) of 1.0. Even though the 100 deer per square mile carrying capacity multiplier is used for Tongass-wide modeling, it cannot be blindly applied at the project level. (And even for Tongass-wide use, documentation discussed later indicates that some scientists favor using a multiplier of 75 deer per square mile. Since the deer model is intended to model habitat but not population, it seems to us that the conservatism of using this lower multiplier is well justified.)

IN SUM: Blind use of the 100 deer per square mile carrying capacity multiplier in this project is a significant error. The predictions of deer availability to predators and hunters both presently and post-project is greatly affected by the choice of carrying capacity multiplier. This directly affects the analyses of impacts on subsistence and wolves, and these analyses in the SDEIS are therefore invalid. In addition, the decision not to apply the wolf multiplier to the model's output has led the subsistence and non-rural hunting analyses further astray. A Second SDEIS is needed to correct these deficiencies.

Analysis #2: The Deer Model That Was Used Is Invalid.

The deer model used in this project, the 1997 TLMP deer model, is invalid for the two reasons discussed below. The model is an Excel spreadsheet, identified in its Instructions worksheet as the "Deer model used in the 1997 TLMP EIS. Version 1.0 Excel prototype." An inspection of the model's worksheets reveals that the model uses the Volume Strata forest classification dataset. This dataset was created for the 1997 Forest Plan revision, and it ranks productive forest into classes of High, Medium and Low timber density (board feet per acre), irrespective of tree size.

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The model used for the Emerald Bay project is falsely and very misleadingly identified in the SDEIS as an "interagency model." (SDEIS 3-79) Although the Forest Service has claimed for years that the is an interagency model, that claim is false, as we will show later. The only interagency deer model that has ever been used on the Tongass National Forest is the Suring et al. 1992 model. The Suring model is a quite different model from the 1997 deer model because it relies on the TimTyp (Volume Class) dataset rather than the Volume Strata dataset.

FIRST REASON THE 1997 MODEL IS INVALID: The Volume Strata forest classification dataset that was used in the 1997 deer model is not appropriate for use in a habitat capability model. Instead of using that model, the Emerald Bay project should have employed a model (such as the Suring model) that uses the TimTyp dataset. The volume strata dataset was devised expressly for inventorying timber volume, not wildlife habitat. It has been found that this dataset's forest classifications have no correlation to old-growth habitat characteristics, such as tree size and crown structure, and therefore it is unacceptable for inventorying such habitat. (See "Deconstructing the Timber Volume Paradigm in Management of the Tongass National Forest," Caouette, Kramer & Nowacki, USFS PNW-GTR-482, March 2000.)

A deer model like the 1997 TLMP model that is based on a forest classification dataset that bears no correlation to habitat characteristics is, simply put, useless. Actually, it is worse than useless because it produces erroneous, misleading data. Because the Emerald Bay FEIS and SDEIS base their estimates of impacts on deer, wolves, and subsistence and non-rural deer hunting almost entirely on this faulty model, these NEPA documents are invalid. They cannot serve as the basis for a reasoned decision or to truly inform the public of the project's impacts.

SECOND REASON THE MODEL IS INVALID: The deer model has failed achieve the scientific endorsements that were sought for it, yet the Forest Service consistently claims (as in the NEPA documents for this project) that the model has scientific endorsement. We believe such claims are based on fraud.

The following is a documented history of the 1997 TLMP deer model, the model used in planning the Emerald Bay project. This history exposes the fraud we allege, and shows that there is no justification for using that model under any circumstances.

On November 7, 1995, the Forest Service convened a panel of four scientists who have deer expertise to review a new model that was intended to replace the Suring et al. deer model. [See Exhibit 1, the notes of the meeting, titled "Sitka Black-tailed Deer Panel."] The meeting was part of the work done on deer modeling during the Forest Plan revision process, and was led by Gene DeGayner of the Forest Service. A day and a half were allotted for the meeting. Two of the four panelists had no on-the-ground experience in Southeast Alaska. The notes state that a purpose of the meeting was to develop a habitat model for deer, using the new model as a starting point. However, the following statements by panelists (as recorded in the notes) show that the objective was unrealistic:

- Said in reference to the new model that the panel was expected to work from: "As a group of scientists we can only say there are problems without making an endorsement (would take months) ..." [p.3]
- "You are asking us, in a two hour time span, to complete the analysis for the model, when two of us have not even been on the ground?" [p.3]
- "Do you want an endorsement?" DeGayner replied, "No, I just want you to air your concerns." [p.3]

Those statements were made early in the meeting. Near the end of the meeting there was this exchange:

- "This makes the point that we sit here without any data. ... The concern is that we are building a model based on no data. ... It makes me realize how inadequate the process is." [p.9]

Then, asked how the rest of the panel feels about the process, some of the replies were:

- "TLMP should afford more than a day and a half of work to build a deer model." [p.9]
- "... the relative numbers may be of some value. There was no time to be pensive and analyze all the numbers." [p.9]
- "... the model is totally inadequate based on the time spent, I would be much more comfortable using the Suring model. There is not much point in us developing a new model or criticizing the old model at this point in time." [p.9]
- "This model really has not been tested, people need to continue to validate. We really need to follow up on this stuff and validate or go back and modify the model." [p.9]

A few weeks later, on December 12, 1995, Matt Kirchhoff (ADF&G's deer expert) sent a memo to Chris Iverson (USFS) concerning wildly different results from the new model compared to the Suring model. The new model was already using some coefficients updated at the panel's recommendation. For WAAs (Wildlife Analysis Areas) on Heceta and Kosciusko Islands, Kirchhoff found that the new model was showing impacts to deer habitat capability to be 49% and 55% lower (respectively) than the Suring model. In both cases the Suring model showed a 91% loss of habitat capability. [Exhibit 2.]

On January 21, 1996, DeGayner replied to Kirchhoff with a copy of a memo that he submitted to the TLMP Revision Planning Files. [Exhibit 3.] It reveals that some model errors had been corrected since Kirchhoff's memo, thereby creating a newer model that DeGayner called the "**verified model**." (This label for the new model gives it credibility it does not deserve, as will become apparent.) DeGayner's memo notes that there continued to be discrepancies between the outputs of his so-called verified model and the Suring model, and he stated how these differences could "probably be explained."

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On January 23, 1996 Kirchhoff replied to DeGayner's memo. After noting that he was using DeGayner's model names, he said: "What is still not clear to me, however, is why the Suring model and the new verified model produce such different end-of-rotation numbers on the same WAAs, for essentially the same alternatives. You suggest possible explanations for the differences, but a more quantitative assessment would be comforting." [Exhibit 4.]

In response, on February 5, 1996 DeGayner produced another memo for the planning record. [Exhibit 5.] DeGayner said: "We have done a quantitative analysis of the habitat capability estimates produced from the new Verified Deer Model and the model used in the 1991 TLMP SEIS. Estimates of habitat decline were overstated in the 1991 TLMP SEIS." The model used in the 1991 SEIS was the Suring model. In this memo DeGayner "attributed" the differences between his model and the Suring model to three causes, and he reached an unsupported assumption that the older Suring model is the one in error. The fact that the Suring model and the new model use different data sets to represent forest characteristics (TimTyp for the Suring model and Volume Strata for the new model) was not mentioned.

In Table 1 of this February 5 memo, DeGayner referred to the new model both as the "**Panel Model**" and the "**verified panel-based deer model**." We consider this labeling to be fraudulent. It confers an endorsement of the model that the record shows the deer panel certainly did not give. There is no legitimate claim for the model being either verified or panel-based. The panel meeting notes provide no support for the claims that the panel authored, endorsed or verified the model, or that the model is otherwise reliable. DeGayner closed his memo to the planning record by recommending that his model "be used as currently designed for evaluating alternatives and future modeling within FORPLAN" for the Forest Plan revision. In fact, the notes of the deer panel meeting and Kirchhoff's preceding correspondence (as well as his later correspondence) indicate that this recommendation was contra-indicated.

To call the model "panel-based," with no mention of the panel process and the caveats provided by the panelists, was not honest. Nonetheless, the February 5 memo's recommendation provided a foundation for relying on the new model (and later variations of it) in the Forest Plan Revision, its ROD, its FEIS, and in the planning of projects like Emerald Bay.

Prior to this memo, one issue with the new model had been the carrying capacity "multiplier" for how many deer per square mile are represented in the model by a habitat suitability index of 1.0. Kirchhoff addressed the issue a few weeks after the deer panel meeting, in a November 27, 1995 memo to DeGayner and Chris Iverson. [Exhibit 6.] After some detailed explanation Kirchhoff concluded: "I believe these exercises support the notion that maximum deer density on the best quality old-growth habitat is between 75 and 100 deer per square mile." Because of limited empirical data and necessary "reaching assumptions" he added, "My inclination would be to choose a conservative (lower) number within that range to be on the safe side."

DeGayner took that advice to heart, and in a handwritten note at the bottom of Kirchhoff's copy of the January 21, 1996 memo [Exhibit 3, supra.], DeGayner inscribed: "I used 75 deer/sq-mile as the base deer multiplier."

DeGayner continued to work on the new model. On May 7, 1996 he convened a meeting of biologists from the Forest Service, the Forest Sciences Laboratory, ADF&G and USFWS to review the deer model. The meeting was continued for a second day on May 12. The meeting is memorialized in a memo from DeGayner dated May 8, 1996 [Exhibit 7], in another DeGayner memo to the planning file dated June 17, 1996 [Exhibit 8], and in a memo by Ed Grossman of USF&WS dated November 14, 1996 [Exhibit 9].

Between the two sessions of the May interagency meeting, DeGayner sent the above May 8 memo, which was addressed to "May 7th deer modelers." He said: "Clearly, the May 7th Model outputs are too low with a 75 deer/sq mile multiplier. So I have displayed the May 7th Model with a 125 deer/sq mile multiplier as a possible alternative." *More on this shortly.*

DeGayner's June 17, 1996 memo (Exhibit 8, supra) to the Forest Plan record starts out by saying the purpose of the interagency meeting was to "discuss the deer habitat capability **model developed by a panel of deer experts** for the TLMP revision in November 1995." [Emphasis added.] Clearly however, as we have shown, the deer panel did not endorse, much less develop, this model. DeGayner's statement is patently false, yet it continues to build the fiction of scientific credibility for the model. It suggests that the model was introduced at the later May 1996 meeting of interagency biologists with an aura of preexisting credibility than it deserved. The memo goes on, toward the bottom of its first page, to name the model considered during the May meeting the "**Interagency Modified Panel Model (IMPM)**." (Emphasis added.) This fortified the fiction of this model's credibility! We do not believe that this panel of scientists was any more able to develop a deer model in the short time allowed than was the November 1995 panel. The memo also says, "This group recommends that this alternative model be used to support the TLMP revision;" however, Grossman's later memo contradicts this.

Grossman's November 1996 memo to Kirchhoff [Supra.] refers to the May interagency sessions, and exposes the scam: "The Forest Service indicates that they consider the new model debate to be over as of this Spring's meeting on the subject. John Lindell, Richard Enriquez, and Winston Smith (all present at this past week's meeting with the Forest Service) recall that the controversy regarding the model was still unsettled. They recall that you were going to compare some new model outputs with your pellet count data to see if they made sense. The Forest Service continues to indicate that you are comfortable with this model. If this is the case, is your comfort based on such a comparison?"

The Grossman memo reveals continuing controversy in the scientific community over the reliability of the TLMP deer model; controversy that is not mentioned in any of the Forest Service documentation. Grossman's memo asked Kirchhoff for a response by the next day because the Forest Service wanted comment by then. We have found no record of a response by Kirchhoff, although in 2002 he said that he had always been, and continued to be, uncomfortable with TLMP deer model. [Pers. com. 1/7/02 with Larry Edwards.]

Grossman's memo also indicates the importance of the model and his concern over it, as shown here with a few extracts from the memo. (1) "The new model projections are being weighted significantly in decisions regarding wolf (and deer) management under the new Forest Plan." (2)

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"These data appear to be unrealistically optimistic." (3) "On the ground observations and comparisons of these estimates with other areas do not support the density estimates projected."

On January 29, 1997 a conclusive memo was submitted to the TLMP Revision planning record, titled "End of Rotation Deer Model Assumptions for TLMP FEIS." [Exhibit 10.] The author is unknown. It begins: "This memo documents the procedures and assumptions used to model deer habitat capability at 2005 and 2095 for the TLMP FEIS. This memo supplements the analysis presented in the FEIS." In other words, the memo was placed in the record and was available to the Forest Plan decision-maker between the time the FEIS was completed and the date the TLMP Revision ROD was signed several months later, on May 23, 1997.

This key memo displays, prominently on its first page, three outrageous statements that vary from extremely misleading to patently false:

1. "The Suring et al. (1993) model has undergone numerous reviews, including a PNW review (Kiester and Eckhardt, 1994)." This implies that the model passed review with flying colors, since no problems with it are noted. In fact, the Kiester and Eckhardt, et al. review was very critical of the practice of placing substantial reliance on any habitat capability model, and identified many limitations and pitfalls of doing so.
2. The next paragraph says: "A panel of deer experts reviewed the Suring et al. (1993)" model. "The panel suggested an simpler (fewer variables) format, new volume classes, **and other minor updates.**" (sic, emphasis added.)

Much of that is simply not true, for these reasons:

- The deer panel reviewed the new model, not the Suring model, and in fact some panel members would have preferred to work from the Suring model. [See Exhibit 1, supra.]
- The new model with its "simpler format" is what the panel was provided to review, but the panelists questioned that model's simplicity. They did not suggest a simpler model format. [See Exhibit 1, supra.]
- The panel did not suggest that the new timber classes (e.g. Volume Strata) be used; it was told that the classification was changed from the TimTyp (Volume Class) classifications to the volume strata classifications because the TimTyp maps were considered unreliable. [See Exhibit 1, p.2, lower half. Supra.] It is now well known, however, that TimTyp is unreliable only for inventorying timber volume, and that it is adequate for representing wildlife habitat. (Caouette, et al. 2000, supra.)
- The panel was also told by Terry Shaw, a TLMP planning team member, "The new model gives you three (statistically valid) TimTyp types. It is not statistical to use at the mean volume, we don't know how to test. That issue will be resolved in three years when the analysis (forest inventory) is complete." [Exhibit 1, p.3 bottom and p.4 top. Supra.] (Note that Shaw's reference to TimTyp is incorrect and instead refers to the new competing timber typing Volume Strata dataset. From the context he was referring to the three new Volume

Stratas of High, Medium and Low volume, not to TimTyp Volume Classes. The reference to TimTyp on page 2 of the notes is made correctly to the prior volume class classifications, Volume Classes 4 through 7.)

The change from reliance on TimTyp (Volume Class) data to Volume Strata data for deer modeling was not a "minor update," contrary to the January 29, 1997 memo's claim. We contend that it was a highly significant update, and it is very likely responsible for much of the unreliability that became obvious and concerned the scientists who reviewed the model. (Recall especially Kirchhoff's observation that the new model grossly understates impacts, and Grossman's November 1996 memo.)

The January 29, 1997 memo continues: "These suggestions were incorporated into the model used in the Revised Supplement to Draft EIS (RSDEIS). This model is called the TLMP Panel Model." [Original emphasis.] As we have already shown above, the panel neither endorsed nor developed the model. Calling it the Panel Model falsely confers scientific legitimacy the model does not deserve.

3. The last paragraph on the page of the January 29, 1997 memo says: "An interagency workshop reviewed the model in the RSDEIS and suggested some additional changes. ... Also, the multiplier used to estimate carrying capacity (K) was increased to make model outputs consistent with hunter deer harvest and pellet data sets." It is highly questionable, however, that increasing the multiplier from 75 deer per square mile back to 125 deer per square mile was ever endorsed by the interagency meeting participants. Kirchhoff has never been comfortable with the higher figure. [Pers. com. 1/7/02, Kirchhoff with Larry Edwards.] The US Fish and Wildlife Service, which had two representatives at the interagency meetings, has continued to request a multiplier of 100 (the higher end of Kirchhoff's suggested range) in comments on project environmental impact statements (for example, the Emerald Bay DEIS; see Emerald Bay FEIS, B-70). (Note that USF&WS was then unaware of ADF&G's preference for a coefficient of 75, and will likely review ADF&G's reasoning for the lower figure. [Pers. com. 1/8/02, Ed Grossman with Larry Edwards.])

The January 29, 1997 memo goes on: "The above suggestions were incorporated into the TLMP Panel. This model is called the Interagency Modified Panel Model." [Original emphasis.] As indicated by the Grossman memo of two months earlier, by subsequent comments by USF&WS and ADF&G on environmental impact statements, and by the cited conversation with Kirchhoff [Supra.], we believe the name given the model (especially with the emphasis) misrepresents the interagency scientists who reviewed the model. The aura of scientific credibility the Forest Service has repeatedly tried to establish for the new model, throughout its development and later use at the project level, is false. The model cannot stand on its own; it can only be propped up with subterfuge, doublespeak and fraud.

A crowning blow to the Forest Plan deer model came with publication of the Caouette et al. (2000) study. This peer-reviewed study shows that there is no correlation between the dataset the model relies upon (volume strata) and habitat structure. The model cannot be expected to function because the data it uses does not look at relevant forest structure. The model should instead have relied upon the too hastily discarded TimTyp dataset. While that data set has poor

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correlation with what it was intended to show (timber volume inventory), it has good correlation with what photo interpreters saw when they compiled it – forest structure that relates to old-growth habitat. This is not a brilliant deduction; it is common sense. In fact, comments were made by the public during the Forest Plan revision process that the TimTyp dataset should not be abandoned for this very reason, and related comments were also made as by scientists during their participation on the 1995 deer panel. The Caouette et al. (2000) study validates these perceptions, exposing the unjustifiable fundamentals that are at the foundation of the 1997 TLMP deer model.

Many of these criticisms were raised in an Interested Party letter by the Sitka Conservation Society during the appeal period for the earlier Emerald Bay decision. We believe the Forest Service erred greatly by not considering the deer model issue during the appeal review or in this SDEIS. The discussion above includes new, reinforcing information that has become known over the years since the appeal.

Analysis #3: The deer analysis relies heavily on models despite known faults with models.

The Emerald Bay FEIS relies very heavily on modeling of deer habitat capability in its analysis of project impacts on deer, viability of the island's wolf population, and subsistence and non-rural deer hunting. This heavy reliance was made even though habitat capability models are well known to be very crude, and despite the issue of whether they should be relied upon heavily, which has been raised for this project as well as for many other projects on the Tongass. Failure to disclose and discuss this issue is a violation of NEPA, and the failure to avoid heavy reliance on modeling has resulted in unreliable impact analyses.

The following short quotes from the peer review of the Forest Plan's wildlife conservation strategy (Kiester, Eckhardt, et al, 1994) illustrate our many concerns:

- "... none (of the Habitat Capability Models) has any calculation of the probable error associated with them. The modeling approach needs to be rethought and a program of work to develop them into models that have Tongass-specific data and confidence limits needs to be developed." (Kiester & Eckhardt, p.5.)
- "Habitat Capability Models in General: We have a good deal of reservation about the HCMs. The greatest concern is about the false precision that the models imply. They may be precise, but the accuracy is unknown and we assume it to be very low. The models are deterministic and do not take into account any stochastic features of the relationship between habitat and population and they are parameterized with data whose error limits are unknown and very likely high. Thus the confidence limits for the models, were they to be calculated in some way, would surely be so large as to render the models close to useless. Also, as the authors of 'Models' point out, the models may be quite sensitive to small changes in parameter values in ways that are not understood." (Kiester & Eckhardt, p.14.)

- "These models have played a useful role in organizing current knowledge and emphasizing knowledge gaps, but it is now time to build on this beginning and move to more realistic approaches whose confidence limits can be calculated. (Also p.14.)
- Specific to the Sitka Black-tailed deer model: "The sampling and analysis techniques used to verify the model are problematic in that there is not enough methodological information available on which to evaluate the analyses. ... An additional concern addresses the issue of using a mean value for snowfall throughout the (Tongass) when there is considerable variation from northern to southern regions of the forest. The model needs to incorporate these issues in order to provide a realistic assessment of the habitat. The HCA model for maintaining viable populations of Sitka black-tailed deer on the Tongass National Forest is probably not suited for the long term. McCullough expresses concerns that problems of oscillating factors may create extremes in population that would make the deer especially vulnerable to the pressures of hunting and wolf predation. This combination of factors could place the viability of the species in question." (Kiester & Eckhardt, p.22.)
- Additional concerns were raised in peer reviews of "Response of the Interagency Viable Wildlife Populations Committee, May 1994":
- "Rule based modeling is a more realistic approach than quantitative modeling, given our level of understanding of the relation of habitat to population abundance. In fact, expecting a strict quantitative relation between specific habitat components and population abundance is a naive view of how nature functions." (Review by Jarvis, p.75 in Kiester & Eckhardt.)
- "The major weakness of HSI (habitat suitability modeling) is that it fails to account for many factors of population dynamics that are potentially important for population viability. Potentially important factors that are only partially accounted for, or completely absent from HSIs, include the effects of habitat fragmentation and edge effects on migration and dispersal, losses due to hunting and trapping, and the effects of demographic and environmental fluctuations on population size and distribution. In some cases only a single limiting factor is identified and included in the HSI, i.e. ... winter habitat for marten and Sitka black-tailed deer, although it is acknowledged that other factors, such as quality of summer forage for Sitka black-tailed deer, have a major influence on reproduction and survival. Thus the approach of HSIs make them intrinsically optimistic, and they may often be poor indicators of population viability." (Review by Lande, p.78 of Kiester & Eckhardt.)
- "The habitat capability models as presented in 'Models' and as utilized in the 'Strategy' suffer from two conceptual weaknesses. The first is that species interactions are difficult to include, other than with those species that enter into the habitat description itself. To some extent this was handled by considering patches with and without some other species present, e.g. wolf. The second flaw is the failure to incorporate landscape features into the model. This problem is not acknowledged explicitly in the reports, but in at least three cases the importance of juxtaposition of two different habitat types was pointed out." The cases cited are brown bear, otters, and mountain goats, omitted here for brevity. "It is in fact frequently the case that species will require several different habitat types either simultaneously or over the course of an annual cycle. Often these life history features were mentioned in the

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narrative descriptions of the various species, but generally got lost when the habitat capability models were developed. The results are especially misleading when each habitat-type is presented as supporting a particular density of individuals. Suppose, for example, that one focal species was found to have a density of nine in habitat A and one in habitat B. The obvious conclusion would be that A is this species' habitat and B can be safely eliminated. It may be in fact that our species requires both habitats A and B but spends 90% of its time in A and only 10% of its time in B. In this case eliminating B would cause extinction of our focal species." (Review by Lidicker, p.89, Kiester & Eckhardt.)

- "HSI models address potential population size given the quality of the habitat, not the actual populations. The actual populations may at times achieve this level, but ordinarily would be lower because of predators, hard weather, competitors, diseases, hunting, etc., etc. Thus, the actual population over a broad area would almost invariably be below that predicted by the HSI model." (Review by McCullogh, p.113, Kiester & Eckhardt.)
- "I would argue that there is no logical way to verify an HSI model. It is an expert judgement system about habitat quality that lacks an objectively measurable population size correlate that will verify the model. It proceeds from 'we think this is right' at development, to 'we still think this is right' after comparison of empirical results, which may agree or disagree greatly depending on the combination of other factors impinging on the population over its recent history. This is exactly why HSIs have such a poor reputation in the scientific literature." (McCullogh, same page.)
- "It is not clear how roads, dumps, and other sources of contact with humans are incorporated into the computer programs at the end of the chapters on the wildlife species. These are important components of the habitat capability models for both bear and martens. It appears, in fact, as though the negative effects of these human components have not been included in the computer models at all. I find this a bit scary. If this exceedingly important aspect of the habitat capability models is not included in the computer models, what else has been omitted? Can the computer models be trusted at all to mimic the written explanations of the habitat capability models? If the computer models are missing important components, what good are they? Nor is it clear how juxtaposition and interspersions of habitats are included either in the verbal habitat capability models or in the computer models. These appear to be mentioned in the text and then dropped, despite their importance. Did the authors assume that juxtaposition and interspersions would not be problematic and therefore could be ignored in the computer models? If this is the case, it must be justified. As habitats change, as is projected because of logging, juxtaposition and interspersions of habitats will change. Therefore these must be incorporated into the models." (Review by Powell, p.159, Kiester & Eckhardt.)

The above extracts from statements by scientists expert in this field show that our concern over heavy or sole reliance on modeling, such as in Emerald Bay project planning, are well supported and widespread. As detailed elsewhere in these comments, the Forest Service is required by law to disclose when scientific uncertainty and /or opposition exists. The Emerald Bay SDEIS fails to do this in regard to the use and reliance of wildlife models both in the larger Forest Plan context as well as at the project level.

The Emerald Bay SDEIS violates NEPA because: 1) it fails to disclose and fully and fairly discuss the downside of the heavy reliance it has placed on modeling; and 2) it fails to use additional analytical methods to assess impacts on wildlife, that would reduce reliance on models.

Conclusions Regarding Our Three Analyses of Emerald Bay Project Deer Modeling

We have explained extreme faults in the 1997 deer model that was used in this project. Here is a summary of the faults and their consequences.

1. The deer model used in the Emerald Bay impact analysis is invalid because:
 - a) it relies on a forest classification dataset that does not correlate to habitat structure;
 - b) it has not had a thorough, independent peer review, and there is significant doubt concerning its reliability within the scientific community.
2. Even if the model were valid and were known to be reliable, the instructions for its use were not followed when it was applied to this project:
 - a) the required consultation with ADF&G to determine the appropriate deer carrying capacity multiplier for use in the model was not done; and
 - b) the wolf factor was not applied to the model's output to account for wolf predation on deer, causing overestimation of deer availability for subsistence and non-rural hunting.
3. Even if the model were valid and known to be reliable, modeling of wildlife capability is generally fraught with serious pitfalls and is not suitable for heavy reliance in impact analysis. The FEIS analysis of impacts to deer erred in placing heavy reliance on modeling, in not using additional methods of analysis, and in not disclosing and discussing the issues surrounding modeling.
4. The Emerald Bay SDEIS erred in relying on analyses based on the faulty model results and in repeatedly noting generalized factors claimed to lead to overestimation of impacts to deer. It failed to recognize issues concerning the 1997 deer model and use of the proper forest classification dataset in habitat models. It also failed to note any of the many factors that suggest the model underestimates impacts to deer, instead focusing only factors (such as partial cutting) claimed to do the opposite and not addressing interagency controversy over those claims. (See IDT meeting notes for the Gravina project dated March 21, 2000, the last sentence of the first page. Please add this document to the Emerald Bay planning record.)

The SDEIS does not comply with NEPA because it relies on bad analyses, because it fails to disclose and discuss many important facts and scientific controversies, and because it is biased. The SDEIS does not comply with ANILCA Section 810 because the analysis of project impact on availability of deer for hunting has no merit. The SDEIS fails to comply

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with the National Forest Management Act because the project's threat to viability of the Alexander Archipelago wolf in the project area, and thereby to the distribution of wolves Forest wide, is not properly analyzed due to bad modeling. And the SDEIS violates the Data Quality Act by presenting incorrect, unreliable, inaccurate, incomplete and biased information.

Request for Relief: We ask that a second SDEIS be prepared because the necessary analytical corrections are so fundamental and touch so many significant issues that an opportunity for public comment is essential before work begins on the supplemental FEIS.

In addition, we request that the 1997 deer model not be used in further environmental analysis for this project, and that use of the model, at least in its present form be abandoned Forest wide. Use of the 1997 deer model violates the Data Quality Act because the model generates information that gets disseminated to the public, and the information does not and cannot, for reasons detailed earlier, satisfy the information standards of the Act.

Rebuttal to recent USFS support for the 1997 deer model and its application

The Forest Service recently issued an appeal decision that contradicts many of the assertions we have made above. This section is a rebuttal to certain points raised in Threemile Appeal Reviewing Officer Cherie Shelley's discussion of Issue 5 (on pages 11 and 12 of her recommendations to the Appeal Deciding Officer, dated October 6, 2004). We refer to these points as "Forest Service assertions" since they were affirmed by the Deciding Officer's acceptance of the recommendations.

1. **FS Assertion:** "ADF&G biologists have funded and conducted studies and published several papers in peer reviewed journals over the past 20 years on how deer interact with their habitat. These studies have shown that timber volume is a good predictor of winter deer range, and ADF&G has argued that low elevation, high volume old-growth timber stands be conserved." (Emphasis added.)

The FS Error: In order to correctly interpret the ADF&G biologists' research, studies and advice, it is necessary to understand what these biologists mean when they use the terms "timber volume" and "high volume." It is apparent throughout the Reviewing Officer's discussion of Issue-5 that she did not have the requisite understanding of what these terms mean in the jargon of wildlife biologists from other agencies (USF&WS as well as ADF&G). The problem here really amounts to determining which dataset (or data map) was being referenced in scientific work or was actually applicable to the work. Three "eras" of understanding must be kept in mind concerning GIS data purported to characterize habitat quality. In the first era, which lasted until relatively late in the planning process for the 1997 Tongass Forest Plan, reference was to the TimTyp so-called Volume Class dataset (or map), which the scientists recognized as correlating well to habitat quality. This is the era in which "volume" jargon entered biological discourse. The second era began around 1995 with promotion by the Forest Service of the Volume Strata dataset (or map). **For a time**, the Volume Strata dataset was believed to more accurately represent habitat because it was designed to accurately classify land by timber volume (which the TimTyp dataset had been proven not to do, despite the Volume Class labels for its

classifications). The essence of what happened is that, for a time, scientists fell victim to their own “volume” jargon and mistakenly believed that the then new dataset that showed volume accurately would also represent habitat quality accurately. The third era began at different times for different people or organizations, as each began to realize that the Volume Strata dataset in fact has poor correlation to habitat quality. Some personnel in the Forest Service have yet to come to this realization, despite the agency’s own scientific work that establishes the inapplicability of the Volume Strata dataset to habitat assessment. (Caouette, Kramer & Nowacki, PNW-GTR-482, March 2000) In view of this history and the resulting profusion of confusing terms and datasets that use the word “volume,” great care must be taken in interpreting documents about deer habitat. It is necessary to determine for each document what is meant by “volume,” which dataset it references, and whether the correct dataset was actually being employed. The Appeal Reviewing Officer did not take such care, and in fact overlooked this issue of confusing lexicon.

2. **FS Assertion:** “This research was considered and used in the development of the deer model and is in the project record [see, for example, Schoen and Kirchhoff, 1990, referenced in decision document #49, p. B-60]”

The FS Error: The appeal points were not whether ADF&G research was “considered and used” in developing the deer model. The points were: 1) that the research and other expert consultation were not correctly incorporated into the 1997 model; 2) that the record shows the 1997 model was not in fact an honest attempt to incorporate research and expert opinion; 3) that grossly different results between the 1997 model and the Suring model were never resolved and that the 1997 was therefore not verified despite Forest Service claims to the contrary; and 4) that the 1997 model relies upon a forest-character dataset that bears no relationship to habitat quality. The Appeal Reviewing Officer did not investigate these substantive points. In addition, we point out that Schoen and Kirchhoff 1990 is an “First Era” document (see above). References therein to “high volume” timber are therefore not references to timber volume as portrayed by the Volume Strata dataset used in the 1997 Forest Plan deer model, but rather to habitat characteristics as portrayed by the TimTyp dataset’s so-called Volume Classes.

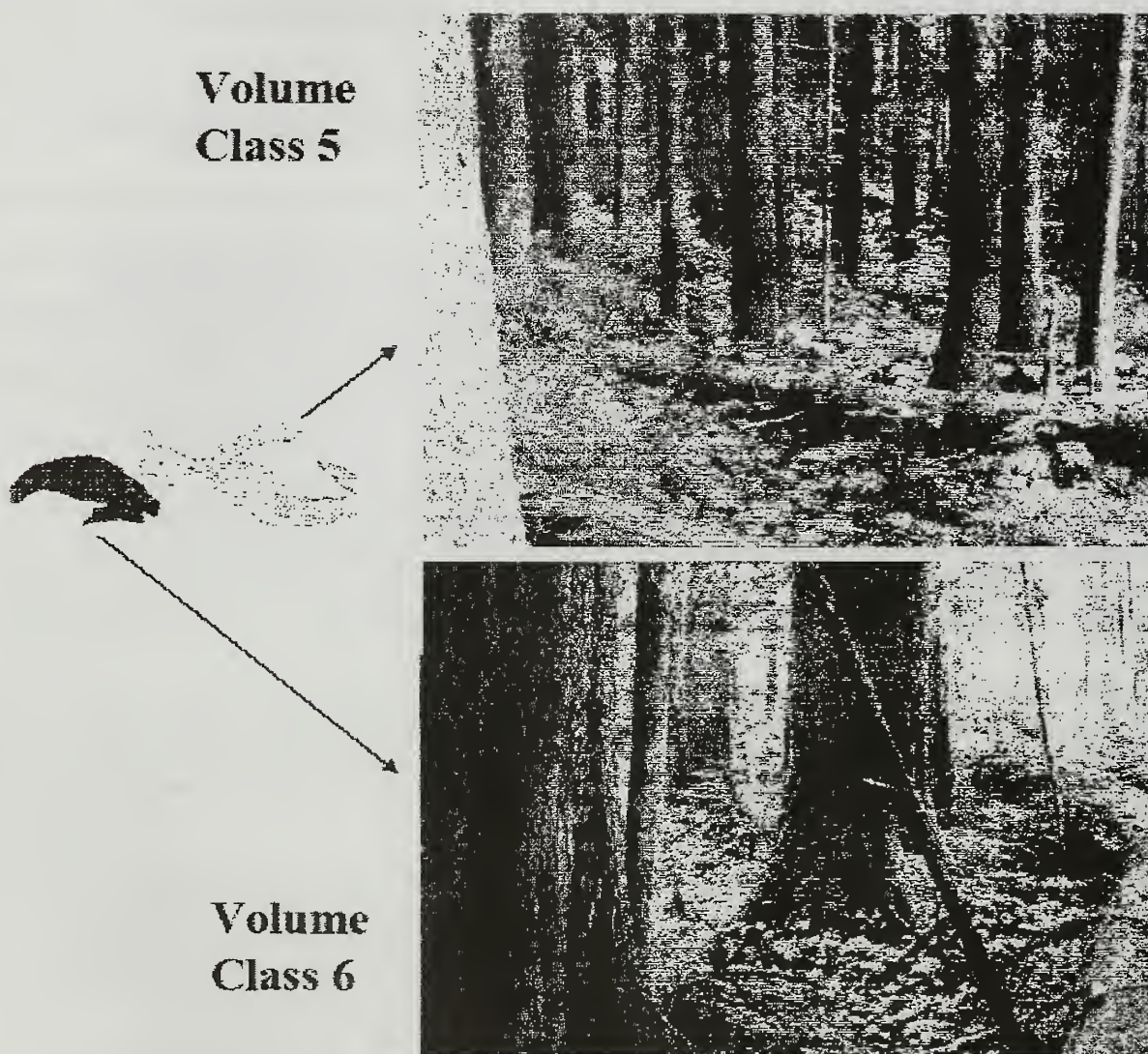
The large difference in how the two datasets represent the forest is well illustrated on the following PowerPoint slides used in a presentation by John Caouette in Ketchikan in 2002. (The complete PowerPoint presentation is available on the PNW Research Station website.) The presentation was of findings made on a study of forest structure on Chichagof Island that compared what each of the two datasets are able to show.

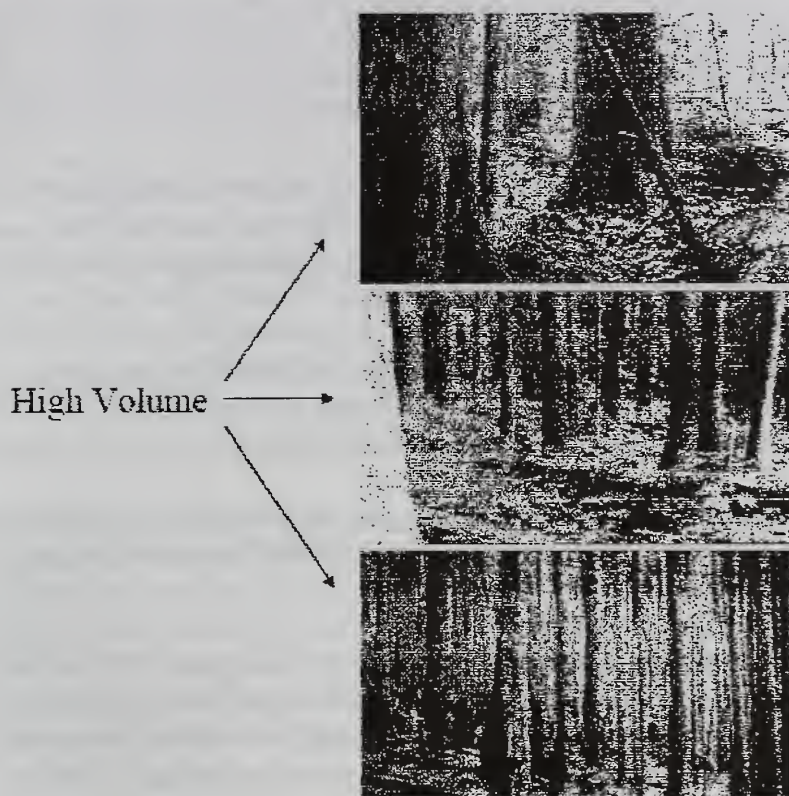
The first slide (including two photos) depicts how well the TimTyp dataset distinguishes between qualities of habitat, here showing differing qualities between so-called Volume Classes 5 and 6. A winter habitat capability model (such as the deer model) based on this dataset can be expected to do a good job of taking into account the abilities of the canopies of stands of varying quality to intercept snow. The term “High volume” timber as used in first era biological studies (e.g. Schoen and Kirchhoff) refers to Volume Class 6 and higher forest. The Suring deer model was based on this dataset. (The diagrams to the left of the photos show the forest stands that these photos correspond to.)

The second slide (including three photos) depicts kinds of forest that are lumped together by the later Volume Strata dataset into what it calls “high volume” timber. It is clear that the term “high

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volume” has a hugely different meaning, depending on which dataset is being referenced. Second era works, such as the 1997 Forest Plan deer model and all project level planning since the Forest Plan was adopted, base their predictions of logging impacts on old-growth habitat on the Volume Strata dataset’s concept of “high volume” timber. While this dataset provides an accurate inventory of timber volume, it is obvious that it is incapable of representing habitat quality. The Volume Strata dataset, used in the 1997 deer model presently used on the Tongass, classifies the forest according to true timber volume density, irrespective of tree size and the crown structure of the forest stand which are necessary elements of classifying habitat.





3. **FS Assertion:** "Research has also demonstrated that the volume stratum map is a statistically valid method of stratifying the forest for timber volume [decision document #46]."

The FS Error: Although the statement is true, its application in the context of the Appeal issues has led the Appeal Reviewing Officer to a false conclusion. The statement is wholly irrelevant to the Appeal issues, and a more thorough review of the literature proves this. Document #46, cited by the Reviewing Officer, is a study by Julin and Caouette published in March 1997, and is an "Second Era" document (see above). A study published three years later (Caouette, Kramer & Nowacki, PNW-GTR-482, March 2000) provides a more complete analysis that builds on the earlier document and establishes an entry into the "Third Era." The above slides fit with this analysis, which poses and answers the question "*Do the original timber volume strata (4-7) accurately capture volume differences in the Tongass or are they more oriented toward differences in forest structure?*" (p. 10) The following excerpts regarding that question are illuminating:

- "Although the revised timber volume strata provide significant differences in timber volume (Julin and Caouette 1997), available information, which could be useful in modeling differences in forest structure, has been sacrificed." (p. 14)
- "Our analyses demonstrated that forest structure and timber volume are not directly correlated." (p. 17)

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- “Although the revised timber volume strata provide more reliable volume data, many interested parties remain unsatisfied. One scientist stated that “the richest old growth and the less valuable stands are classified into a single category [high volume]” (Schlickeisen 1998).” (p.17, emphasis added.) The richness here refers to habitat value, not timber value.
- “It seems that many people are dissatisfied with the revised timber volume strata because they want to see forest structure delineated and mapped for the Tongass. ... Any forest stratification that has timber volume as its primary objective will necessarily group together stands of similar timber volume regardless of differences in forest structure. Our analysis showed that this is what happened in the timber stratum revision process (Julin and Caouette 1997). During this process, *differences in forest structure were collapsed into a single category because they showed no significant difference in mean timber volume*”. (P.17, emphasis added. Note that the “single category” is High Volume Strata.)

4. FS Assertion: “It is reasonable that the deer model used the volume-stratum map, since it was the only statistically valid map available at the time and it utilized ADF&G’s research findings on deer habitat selection and timber volume.”

The FS Error: The statement is false. The Reviewing Officer failed to distinguish for what the map is statistically valid and for what it is not statistically valid. The Volume Strata dataset (or map) was proven (Caouette, Kramer & Nowacki 2000) to be statistically not valid for assessing habitat quality. The only currently available dataset that is valid for assessing habitat is TimTyp. (Ibid.)

5. FS Assertion: “This map is undergoing peer review and has not been tested for its utility for evaluating deer habitat, whereas timber volume has been extensively evaluated. A method that utilizes tree diameters and tree densities may better discriminate forest structure and timber volume. That method is in its final evaluations now and could be evaluated for use in updating the deer model.”

The FS Error: This new map (Veg-Mod) is irrelevant because it is not available for use. Under NEPA, the Forest Service must use the best available data. For the purpose of assessing impacts to deer, the best available data is the TimTyp Volume Class dataset. As a separate consideration there is no legitimate justification, and this includes the non-availability of the Veg-Mod dataset, for using the Volume Strata dataset to assess habitat quality because it is not suitable for this task.

6. FS Assertion: “Several statements in the Threemile FEIS acknowledge the concern about confidence in the model. In brief: the word “theoretical” was used to indicate uncertainty; the model was evaluated by field surveys; the model represents just one tool in project level analysis; models are best used to make relative comparisons between alternatives rather than actual population predictions. Any changes in the model will be the result of field observations, thorough analysis, and peer review [FEIS, pp. 3-128, 3-166, 3-169, and 3-176].”

The FS Errors: In the FEIS the Forest Service relied primarily on the deer model for the relevant analyses; other tools played a minor role. Although field surveys are mentioned in the FEIS, there is no discussion of how or whether these surveys were used to evaluate the model – in fact, every indication is that the surveys were done for other purposes. The word “theoretical” is not on any of the pages cited (in fact those pages are not relevant to any of the above assertions). Even if the FEIS does recognize the theoretical aspects of the deer model, it repeatedly suggests that the model overestimates impacts but does not disclose any of the many factors that cause the model to underestimate impacts or to give wild results.

7. FS Assertion: "Appellants further assert that the FEIS discussion of the effects of partial harvest is misleading. I disagree. The appeal does not question the results of the model. Nor have appellants disagreed with the way a specific area on the map published in the EIS was scored."

The FS Error: To the contrary – the appeal strongly questions both the model and its results, and the appeal challenges the generalized claim of the FEIS that, simply because the model assumes partial cuts to have the same impact as clearcuts, project impacts are less than the model suggests. The FEIS ignores factors that lead the model to underestimate impacts, while emphasizing this claim of overestimation (a claim that has been challenged by ADF&G biologists based on field experience). Further, it is not germane to cite a specific area in pointing out the unfairness of the generalized claims in the FEIS.

8. FS Assertion: "There is an exception, however; the appellants questioned the Forest's judgment about the value of winter range that has had a partial harvest prescription applied. The Forest gave partial cuts the same value as clearcuts, but stated that this was a 'worst case' assumption." Several studies by Deal are cited. "The idea that partial cutting may provide some benefit to deer and other wildlife is not an unsupported supposition. Given that these papers are in the project record, the Forest's approach was reasonable and not arbitrary."

The FS Error: We do not have the studies by Deal. As represented in the Threemile project's Wildlife Specialist Report, his studies focus on browse generally, and not winter habitat. The deer model focuses on winter habitat. The effects of partial cutting and how (or whether) to treat it in the deer model has been controversial, but the presentation in the report and the FEIS is one-sided and disregards the controversy. As an example that highlights the controversy there is this in the Gravina planning record:

"Furthermore, feedback Jim (Zelenack, project biologist) has received from commenting agency biologists indicates they do not think partial cutting they have seen so far should be given any credit in the current deer model." (See record of IDT meeting for Gravina project, 3/21/00. We request that this document be added to the Emerald Bay planning record.)

9. FS Assertion: "ADF&G (Person and Kirchhoff) evaluated the deer model and reported their results at the 2000 Annual Meeting of the Alaska Chapter of the Wildlife Society in Juneau. They compared model results with their pellet data set and reported a significant positive relationship (regression) between deer model scores and pellet densities."

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The FS Error: Person and Kirchhoff have not given the 1997 deer model the endorsement that is implied above, according to our reading of their study. The study presented at the 2000 meeting is contained in Appendix 1 of Person & Bowyer, 1997 ("Population Viability Analysis of Wolves on Prince of Wales and Kosciusko Islands," prepared for the US Fish and Wildlife Service). Some extracts from the study (including some commentary by us) are illuminating:

- "The model has not been validated (if in fact it can be validated) and has undergone little review. It was designed as an index; however, it is currently being used to predict actual deer numbers in order to evaluate whether various timber harvest alternatives meet the recommendations of the wolf conservation assessment. Thus it is being used for a job for which it was never intended." (p.63) We note that this misuse applies to assessment of impact to subsistence, as well as to wolves.
- "If the relation (between pellet counts and HSI) were strong then the HSI model could be relied upon to provide some information about real deer numbers." (p.63, emphasis added.) Instead, Kirchhoff has characterized the correlation as "weak but significant." (Pers. Com. with Edwards, 10/11/04.) Person has a similar opinion. (Pers. Com. with Edwards, 10/11/04.) This is also pointed out in the study: "Results from the regression analysis indicate that HSI is significantly correlated with the mean number of pellet groups per plot, but the (r-squared) value is very low, suggesting that HSI is a poor predictor of deer activity (Table A1)." (p.64)
- Concerning the 100 deer per square-mile multiplier: "This estimate should be considered as a maximum value because pellet-groups represent the cumulative activity of deer over time and density estimates derived from them will likely overestimate the number of deer." (p.66, emphasis added.) We note that the Instructions tab of the 1997 Forest Plan deer model states that ADF&G should be consulted for each project to see if a lower multiplier should be used, but that this was not done.)
- "Although our analysis may improve the evaluation of data currently available on deer numbers, it underscores the enormous uncertainty surrounding deer populations and any predictions for the future." (p.67)

The Person & Kirchhoff presentation of the Person and Bowyer study, then, did not endorse the deer model – it has not been validated, has undergone limited review, is being used for purposes for which it was not intended, and its HSI data has a weak correlation to habitat use.

10. FS Assertion: In reference to the Person & Kirchhoff presentation – "This is where ADF&G suggested that the Forest Service should use 100 deer per square mile in its NEPA effects analyses instead of the 125 deer per square mile multiplier currently used."

The FS Error: The Forest Service's assertion overlooks both the statement in the Person and Bowyer study that the 100 multiplier "should be considered a maximum," and the instruction contained under the Instructions tab of the 1997 Forest Plan deer model. ADF&G should be consulted on project-level applications of the model, to determine what multiplier should be used.

11. FS Assertion: "Given that the deer model is used to evaluate relative differences between alternatives and not provide absolute numbers, in my opinion, use of the deer model is reasonable. The deer model is the best available means of estimating the effects of project alternatives on deer populations."

The FS Error: The FEIS uses the model for other purposes besides evaluating the relative differences between the action alternatives. 1) It applies the carrying capacity multiplier to predict the number of deer per square mile in an attempt to estimate impact on wolves. 2) It does the same thing in an attempt to estimate impact on subsistence deer hunting. 3) It estimates impact on deer relative to the current situation, which is a fundamentally different analysis than the comparisons among action alternatives.

All of this, however, overlooks the fact that the model used is based on a dataset – Volume Strata – that has no correlation to habitat quality. Therefore the results of the model, and the analysis based upon the model, are worthless.

For the above reasons, we believe the Forest Service's defense of the 1997 deer model and its application at the project level is without merit.

Note that the above rebuttal to the Forest Service's defense of its model touches on only some of the points we have raised concerning the deer model (and the various issues it affects) in these comments. A significant difference between our arguments here and those in the Threemile appeal is that these comments rely in part on a later discovery that instructions for applying the deer model have not been followed.

Throughout, the SDEIS Exhibits Poor Understanding of Data Applicability

The SDEIS exhibits an inadequate understanding on the part of the planning team about the distinction between the TimTyp (Volume Class) dataset and the Volume Strata dataset. It also exhibits an inadequate understanding of the applications for which each of these datasets is legitimate or illegitimate.

In order to fully understand this section, please read the section titled "Volume Class vs. Volume Strata" beginning on page 3 of the joint Appeal of the Emerald Bay project filed by Forest Conservation Council and the Sitka Conservation Society. We incorporate that section into these comments by reference. The lexicon surrounding the term "volume" and its meaning under various datasets is confusing, the planning team has apparently fallen victim to that confusion. It is the professional responsibility of the team to come to grips with the complexities of the language, the forest classification datasets, and the varying meaning of key words in studies that come from the three distinct eras of wildlife issues on the Tongass. So far the team has failed in that obligation. We are highly disappointed that the team has not made the effort to understand and incorporate the knowledge presented in the mentioned section of the appeal.

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The SDEIS has an "Available Information" section on pages 3-3 and 3-4. While it acknowledges that there is a less than complete knowledge of many of the relationships and conditions of wildlife (and other issues) it then states that "the basic data and central relationships are

sufficiently well established in the respective sciences" for a reasoned analysis and decision. We contend that while the statement is true, the Forest Service has clearly demonstrated highly deficient understandings of basic data and central relationships concerning forest structure as it relates to wildlife habitat. These deficiencies are reflected in this SDEIS, which utterly fails to distinguish between the forest classification dataset that is useful only for inventorying timber volume per se (the Volume Strata dataset) and the one useful only for inventorying old-growth wildlife habitat (the TimTyp or Volume Class dataset). Much of our reasoning concerning the agency's deficiency is apparent in the sections of our comments concerning the deer model. This section discusses the deficiency further, regarding specific statements in the SDEIS.

1. The Alternative A Map (Figure 2-1 on p.2-18) overlays the project area with what it calls "Volume Class Strata" information. Is the data that was used from the Volume Class dataset or the Volume Strata dataset? This is posed rhetorically as well as inquisitively. "Volume Class Strata" is very ambiguous term; however, the fact that the classifications are High, Medium and Low seems to indicate that the Volume Strata dataset was used. The SDEIS does not explain for what kinds of considerations use of this map is legitimate or illegitimate. If the map employs the Volume Strata dataset it is legitimate to use the map as an indication of where the densest timber stands are located; however, it is illegitimate to use it as an indication of where the highest quality old-growth habitat is located. Two maps should be presented, one based on TimTyp data and one on Volume Strata, with an explanation of how each should be used in comparing the alternatives.

2. The SDEIS repeatedly uses the term "High Volume" forest in discussions and tables without any explanation of which dataset the term represents and how this term as defined by that dataset applies to wildlife issues (it doesn't!). It is apparent, however, from the mention of High, Medium, Low volume classifications and from the large (30%) reported amount High Volume forest in the project area that all references to High Volume (with two exceptions mentioned later) are to the Volume Strata dataset. In essence, the entirety of all analyses in the Biodiversity and Wildlife sections of the SDEIS have as their foundation a dataset that has no correlation (as explained in other sections of these comments) to habitat characteristics.

References in the SDEIS to the irrelevant Volume Strata dataset for supposed analysis of wildlife issues include, but are not limited to:

The statement on page 3-7 concerning the amount of High Volume old growth in old-growth reserves in the project area and surrounding VCUs.

The tables on pages 3-8, 10, 11 77 and 82.

The statement concerning High Volume and the best deer winter range on page 3-79. (The model being discussed improperly uses the Volume Strata dataset to portray deer winter range.)

The statement on page 3-79 that high value marten habitat is High Volume old-growth, which does not recognize that marten analysis must be based on TimTyp Volume Class data, not the Volume Strata data presented in the SDEIS.

Comb-26
cont.

At the same time, references in the SDEIS to the term High Volume as used in pre-1995 studies (i.e. Era 1 studies --- see explanation in the deer model section of these comments) do not explain that, as used in these studies, the term refers to the TimTyp Volume Class dataset. In these studies it does not to the Volume Strata dataset that has been used in the tables and discussions of the SDEIS. See for example the second sentence of the Sitka Black-tailed Deer section, on page 3-78. The SDEIS should base its discussion and analysis on the kind of data (TimTyp Volume Class) these studies actually considered, not the very different kind of data used in the SDEIS (Volume Strata).

The SDEIS does make three fleeting, unsubstantive references to the TimTyp Volume Class data set. Simple statements are made on pages 3-77 and 82 that "Volume classes 6 and 7 are the current best available portrayal of coarse canopy stands (Puchlerz 2002)." A table also on page 3-77 shows that only eight percent of the project area is Volume Class 6 or 7. These are the only mentions of TimTyp data in the SDEIS. There is no mention of why coarse canopy forest is important to some species of wildlife, nor is there any analysis of impacts to wildlife based on data that portrays this kind of habitat. What has happened here is that the planning team has simply inserted a brief mention of TimTyp forest classifications ordered by former Forest Supervisor Puchlerz in the cited document, but without following through with the substantial analysis that use of this dataset demands for a science-based, reasoned decision.

A further problem is that the SDEIS mentions only one difference between the Suring marten model and the 1997 model presently in use. See page 3-79. The mentioned difference is the value of the habitat capacity multiplier, while the most fundamental difference is not; the Suring model uses the TimTyp volume strata dataset, while the 1997 model uses Volume Strata. The model used in this project operates on forest classification data that has no correlation to habitat characteristics.

Comb-26
cont.

On page 3-9, the SDEIS discusses silvicultural treatments proposed by Alternatives C and D. It says that after logging the units would develop "a distribution of diameter classes typical of an uneven-aged" stand. In another section on page 3-11 the SDEIS says these alternatives would "maintain the stands as old-growth but in a lower volume category." There is no real analysis of the effects of these alternatives regarding stand structure as it relates to habitat. The over-simplified approach implies that the effects on habitat are minimal. We believe a substantive analysis is necessary. Maintaining diameter-class distribution is likely inconsequential if the resulting stand is too open. Also, saying the stands will be knocked back by a category is not enough – what effects will that cause? Further, we contend that these alternatives do not mimic natural processes because the scale of the disturbance this project will cause is far larger than the scale of natural disturbances the project area has been experiencing.

All of the problems described in this section and the sections on the deer model are exacerbated by the fact that a Wildlife Resource Report was not prepared for the SDEIS. The analysis and discussion is not only based on the wrong kind of data, it is grossly over-simplified in its approach.

The discussions, analyses, and more importantly the dataset foundation of the SDEIS utterly fail to present a fair portrayal of project impacts on wildlife, and have not addressed issues raised by the public and other resource agencies. If this project is to remain in the schedule, the wildlife part of project planning must be redone from scratch and to a far higher standard. A second SDEIS would be necessary in order for the public to comment on a fair and accurate environmental analysis.

Comb-26
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The SDEIS Fails to Address High-grading

One of the most serious impacts of logging in the Tongass is the loss of biodiversity resulting from high-grading. High-grading can exist in two forms, the disproportionate logging of high value, high-volume timber stands and the disproportionate logging of rare, high value timber species (i.e. yellow cedar).

The Emerald Bay SEIS is insufficient, and violates NEPA, by failing even to disclose the existence of this serious problem as it generally exists on the Tongass, and as it could potentially exist for this project. See, 40 CFR 1502.1 (EIS "shall provide full and fair discussion of significant environmental impacts"). There is not enough information in the SDEIS to determine the extent which the various alternatives target high-volume stands or higher value species, particularly cedar, disproportionately.

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The Final EIS for the TLMP Revision almost completely ignored the issue of the high-grading of high-volume timber stands. See TLMP Revision Appeal of Sitka Conservation Society and Natural Resources Defense Council, Appeal No. 97-00-13-0112, at 3-7 (Sept. 25, 1997). The Appellants hereby incorporate the arguments and evidence from the TLMP appeal by reference.

The SDEIS Fails to Adequately Consider Impacts to the Medium OGR

The SDEIS fails to take a hard look at the environmental consequences from development within the medium old-growth reserve. The preferred alternative will construct 2.2 miles of new road through the reserve, construct an LTF in the reserve and construct two- 5 acre rock pits inside the reserve. All of these activities are in clear contradiction to the very intent and purpose behind the creation of these reserves.

The objectives of Old-Growth Habitat LUDs as defined by the Forest Plan (TLMP 3-76) are to:

- (1) provide old growth forest habitats to maintain viable populations of fish and wildlife taxa that are closely associated with old-growth forest habitats;
- (2) contribute to habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses;
- (3) maintain biodiversity and ecological processes in old-growth habitats;
- (4) restore previously harvested forest stands to old-growth forest conditions at an accelerated rate; and
- (5) to the extent feasible limit roads, facilities and permitted uses to those compatible with old-growth forest habitat management objectives.

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We can find no support for the proposition that construction of a road, LTF and two rock pits within the OGR, is in any way compatible with the objectives of the Old-growth habitat LUD. In fact, these activities clearly violate all the objectives for which OGRs were designed.

Further, the SDEIS is void of any meaningful analysis regarding the impacts these activities will have on the functionality of the OGR. While the document recognizes the road is likely to have a greater impact than originally thought as it will impact more medium and high volume forest and is located closer to a creek than was originally mapped, no meaningful discussion of the impacts of the road is provided. (SDEIS 3-12) In fact analysis is limited to a blanket statement that only less than 1% of the POG within the reserve would be impacted and a linear feature with edge effects may result in the OGR. These vague blanket statements due not meet the "hard- look" requirements of NEPA and further, given that development activities are inconsistent with the very intent of OGRs, a heightened level of scrutiny and analysis is in order.

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cont.

The SDEIS Does Not Adequately Consider Impacts of Roads

The Emerald Bay SDEIS also fails to take a hard look at impacts to fish and wildlife populations attributable to road construction. Road construction and presence has been highly correlated with changes in species composition, population sizes, and hydrologic and geomorphic processes that shape aquatic and riparian systems. Roads alter deer, black bear, and wolf behavior by causing changes in home ranges, movement, reproductive success, escape response, and physiological state. Roads also promote increased hunting, fishing, passive harassment of deer, bear, wolf, and other species, and landscape modifications. These concerns are furthered on the Tongass National Forest where roads are not properly maintained.

The general and conclusive statements in the SDEIS offered by the Forest Service concerning potential impacts of roads are completely inadequate. The document makes several unwarranted assumptions that road constructed for this project will not have adverse impacts. This reasoning appears to be based on the intended closure of the roads to public use during and after completion of silvicultural activities. However, the SDEIS recognizes the ATV use is difficult to control at best. Further, recent Tongass monitoring reports clearly demonstrate the Forest Service lacks important monitoring information on the effectiveness of closure measures in preventing ATV access and further lacks the resources to enforce such closures.

Comb-29

Second, on numerous occasions the SDEIS dismisses the impacts of increased hunting and trapping on sensitive wildlife species such as the wolf and marten due to road construction claiming the area is isolated and boat landings are difficult in winter weather. However, given that 19 wolves were taken from the Cleveland Peninsula during 2003/2004 this statement seems unsupported. (SDEIS 3-86) This reasoning is further contradicted by the fact that ADF&G has had to close mountain goat hunting in the area due to over harvest.

In describing alternative design, the DSEIS explains that the 6.2 miles of road to be constructed in Alternative B, the Preferred Alternative, "would be constructed to minimize impacts." (DSEIS at 2-1). What "road type" would the agency classify such "roads" as temporary or specified, classified or unclassified? Will road location and building specifications be specified

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in the timber sale contract? If not, how will the Forest Service control the location and construction of roads for this proposed sale?

The DSEIS further states that “the first section of the road, within beach sight distance, would be obliterated through the placement of debris, such as rocks, root wads, and large wood pieces, on the road surface.” *Id.* at 2-2. Later, in discussing environmental consequences to soil productivity, the DSEIS states reclamation of shot rock roads is “impractical” and “would result in much soil disturbance and erosion.” *Id.* 3-55. This is all the specific discussion contained in the DSEIS describing and evaluating the effects of the proposed road obliteration. This leaves us with several questions:

- Exactly how much road will be within “beach sight distance” and subject to obliteration?
- What does the Forest Service mean by the term “obliteration.” Does the Forest Service contend that placing debris on the road surface is synonymous with taking steps that result in the removal, decompaction, or scarification of the road surface and underlying fill?
- What are the effects from removal, decompaction, or scarification of the road surface compared to the proposed placing of debris on the road in minimizing the long-term effects from road building on wildlife habitat?
- How does loss of soil productivity and the soil disturbance and erosion associated with construction of a road compare with the comparable effects related to reclamation of shot rock roads?
- What are the costs involved with the level of “obliteration” proposed by the Forest Service?
- How does that cost compare with the cost of removal, decompaction, or scarification?

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cont.

Although the DSEIS identifies proposed rock pit sites on the road cards and discusses the difficulties in reclaiming shot rock roads, it does not specify whether shot rock will be the only type of fill used for roads? Please clarify. What other types of fill are available and could be substituted for shot rock? When would choices regarding the type of fill be made, and by who? What are the environmental effects of the different fill materials? Would the same type of road fill be used for temporary as well as specified roads?

Both the Preferred Alternative and Alternative D propose bisecting the medium Old-growth Habitat Reserve with 2.2 miles of road. TLMP allows new roads in habitat reserves if other alternatives are infeasible and such construction would be compatible with the objectives for this LUD. *See* TLMP at 3-81 (TRAN 1.A.1). In discussing the environmental effects of the project on biodiversity, the DSEIS provides a brief discussion regarding the isolated nature of the project area, the loss of old-growth acres associated with the road construction, and proposed post-operation maintenance levels. (DSEIS at 3-11,12). We could not, however, find a specific evaluation of the compatibility of this road with all the objectives for the Old-growth Habitat LUD. Please explain how constructing 2.2 miles of road is compatible with supporting habitat capability of fish and wildlife resources and maintaining ecological processes with old-growth forest habitat. This discussion should include an evaluation of the direct effects associated with fragmenting old-growth habitat, creating edge habitats, and disrupting near-surface flow of water, as well as the indirect and cumulative impacts in a naturally fragmented area.

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Roadless Area Entry Into Emerald Bay is Illegal

No acceptable rationale exists for entering Tongass roadless areas through the Emerald Bay project. The Forest Service's decision in the Tongass Land Management Plan (TLMP) to allow entry into roadless areas was illegal. The Roadless Area Conservation Rule (RACR or "Roadless Rule") appropriately pulled Tongass roadless areas out of the timber base and has not been lawfully revoked for the Tongass. Ample timber exists outside Emerald Bay and other Tongass roadless areas to prepare and administer a responsible timber supply pipeline that not only meets but exceeds current market demand.

It is particularly disappointing that the Forest Service has elected to pursue roadless area entry in Emerald Bay, given the U.S. House of Representative's bipartisan adoption of the Chabot-Andrews amendment to the FY05 Interior and Related Agencies Appropriations Bill, prohibiting spending additional taxpayer dollars subsidizing wasteful and economically unfeasible roadbuilding projects in the Tongass National Forest. Moreover, the overwhelming majority of the interested public supports protecting roadless areas, including – and in many cases especially – those of the Tongass. In the past few years, the Forest Service has received literally millions of public comments supporting protections for Alaskan roadless areas, through inclusion of the Tongass (and Chugach) in the RACR. More locally, 7500 Alaskans participated in the public process that led to adoption of the RACR, and 82% of them favored protecting roadless areas in the Tongass. The American public has communicated in no uncertain terms that it feels the most valuable use of roadless areas on public lands is for public agencies to keep them unroaded.

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The 1997 TLMP's Authorization of Roadless Area Entry Is Illegal

The Emerald Bay DSEIS relies on TLMP and its FEIS, and states that it "does not attempt to address issues decided at higher levels." (DSEIS at 1-6). However, TLMP does not justify the Emerald Bay project. As an initial matter, the Forest Service takes the position that forest plans like TLMP do not decide whether to proceed with individual projects. The issue of whether to make a logging entry into Emerald Bay has to stand or fall on its own.

More fundamentally, the Forest Service's decision in the TLMP to allow entry into any roadless areas was illegal. Because roadless areas are important to the viability and survival of wildlife populations well-distributed throughout the Tongass, many scientists recommended that the agency put them off limits to logging and road building in TLMP. The Forest Service failed to follow this advice or even to consider in a full TLMP alternative what the benefits of doing so would be. These failures were wrong and illegal, as more fully described in the following documents, incorporated herein by reference: appeals of TLMP filed by the Natural Resources Defense Council and Sitka Conservation Society (Appeal Number 97-13-00-0108), and Southeast Alaska Conservation Council (Appeal Number 97-13-00-0101), intervenor comments filed by The Wilderness Society et al. and the Southeast Alaska Conservation Council in TLMP appeals, and a Request for Interim Relief for Timber Sale Projects Pending Resolution of the Tongass Land Management Plan Administrative Appeals, filed with the Chief of the Forest Service on July 31st, 1998 by these and other conservation groups.

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As Supervisor Cole is aware, the agency's denial of those appeals is now under litigation in NRDC v. Forest Service, Ninth Circuit Appeal No. 04-35868. That lawsuit, joined by several of the commenting organizations here, is based in part on the agency's decision to take risks with wildlife viability that it deemed "acceptable" in its efforts to meet market demand. See TLMP Record of Decision at 15-16, 35. Because the agency was profoundly wrong in its account of market demand and that error was integral to the decision to adopt TLMP, the Ninth Circuit found that it was likely to lose the lawsuit. See NRDC v. Forest Service, Ninth Circuit Appeal No. 04-35868, Order of Oct. 18th, 2004, granting injunction pending appeal, at pages 2-3.

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cont.

The Roadless Area Conservation Rule Applies to the Tongass

The Emerald Bay DSEIS also wrongly characterizes the Roadless Rule as though it did not apply to the Tongass. The DSEIS says that the "US District Court for the District of Wyoming permanently enjoined the Forest Service from implementing the roadless rule in July 2003." However, the RACR remains enforceable outside of Wyoming. This August, a Forest Service timber sale in a California roadless area was enjoined in part because it violated the Roadless Rule. The judge in that case rejected the Forest Service's argument that the sale fell within the RACR's exception for "generally small diameter timber." See Sierra Club v. Eubanks, (E.D. Cal. 2004) slip opinion at pp. 18 & 19. Moreover, the federal appeals court with jurisdiction over Alaska has resoundingly upheld the Roadless Rule against challenges like those brought in Wyoming. The Ninth Circuit Court of Appeals rejected all of the RACR opponents' claims that its NEPA process was faulty. "NEPA may not be used to preclude lawful conservation measures," like the Roadless Rule, the Court ruled. Kootenai Tribe v. Veneman, 313 F.3d 1094, 1123 (9th Cir. 2002). Although other claims than those in Kootenai Tribe were once raised against application of the Roadless Rule in Alaska, the plaintiffs dismissed them voluntarily when a federal judge ordered them to proceed with briefing them, and they cannot now rationally be viewed as constraining the Forest Service.

Comb-34

The Forest Service has, since then, issued an interim suspension of the RACR for the Tongass. That suspension, however, is unwarranted and illegal. The attached letter to Chief Bosworth, dated September 2, 2003, details why the agency lacked a legally sufficient basis for it. Because the RACR was improperly suspended for the Tongass, the suspension does not justify entry into roadless areas in Emerald Bay. Again, as Supervisor Cole is aware, that illegal suspension has been challenged in court. See Organized Village of Kake v. Forest Service, US District Court for the District of Alaska, No. J04-029 CV (Complaint filed November 5, 2004).

Moreover, because the suspension of the Roadless Rule is only temporary, proceeding with roadless area entry now would prejudice the Forest Service's forthcoming decision about permanent application of the RACR to the Tongass. The agency is currently considering whether to reinstate the Roadless Rule on the Tongass or permanently to exempt it (and other national forests). The Code of Federal Regulations, at 40 CFR 1506.1(c), directs that when work is underway on a programmatic environmental impact statement, federal agencies shall undertake other work only if it "[w]ill not prejudice the ultimate decision on the program." Because abandoning the Roadless Rule would significantly affect the environment, the agency should be preparing an EIS for doing so and in the meantime avoid prejudicing the outcome. But

committing agency resources to roadless area entry in the meantime would tend to prejudice the subsequent decision on RACR applicability and would therefore be illegal.

The SDEIS Does Not Adequately Discuss Impacts to Sensitive Plants as Required

The Biological Assessment and Evaluation (BA/BE) regarding plant surveys are confusing. The BA/BE states that botanical; two botanical surveys were completed during 1998 following the "Inventory Protocol for Sensitive and Rare Plants for the Ketchikan Area" (Krosse 1997). The document then states, "detailed methods and results of botanical surveys, along with survey routes, can be found in the Planning Record (P.A. Woolwine, report of October 24, 1997)." It is unclear if the surveys were not done until 1998, how they can be documented in a planning record document from 1997.

Comb-35

The SDEIS Fails to Adequately Disclose Impacts of Logging on Steep Slopes

The DSEIS explains that logging will occur on approximately 15 acres of slopes greater than 72 percent and those areas have received an on-site analysis by soil scientists. DSEIS at 2-3, 2-16. The DSEIS, however, fails to disclose the results of the on-site analyses or provide site-specific assessments of potential impacts on downslope and downstream fish habitat, other existing uses, or other resources. To comply with NEPA, the Forest Service must make available to the public and carefully consider this detailed information in the DSEIS. Moreover, the Forest Service can not rely upon the opinions of its own experts without disclosing the underlying data supporting the opinions. Simply referring to reports in the administrative record is insufficient to meet the requirements of NEPA to disclose "high quality" information in the EIS.

Comb-36

The SDEIS Fails to Adequately Disclose Impacts on Wetlands

In evaluating the effects of the proposed action on wetlands, the DSEIS identifies estuaries as one of three "high-value wetland types" within the project area but doesn't evaluate the effects of the proposal on these wetlands because "the project area shoreline excludes the entire estuary." (DSEIS at 3-73). This statement is inconsistent with the project area identified in Figure 1-2 of the DSEIS and the information provided on Road No. 8645900-1. *See id.* at 1-9, Appendix E at E-4 ("Road crosses ... estuary buffer"). Please clarify.

Comb-37

The SDEIS fails to address concerns about Impacts to Headwater Streams

We are especially concerned about impacts to headwaters streams, which influence water quality throughout the rest of the watershed. Any human disturbance in the area is likely to lead to some level of impact to the watershed, especially in an area with so much wetlands, steep slopes, and past human disturbance. Recent research has shown that disturbances in uplands far further than the width of the riparian buffer can impact streams ((Ilhardt et al, 2000). NEPA obligates the Forest Service to use the best available science. Given the current depressed market for Tongass wood products, the value of the forest left standing is much higher than the timber commodity value.

Comb-38

Riparian zones in Southeast Alaska, due to our high rainfall levels that create upslope fens, bogs, and forested wetlands, can stretch great distances upslope from streams. (Ilhardt et al, 2000). "As the headwater streams go, so goes the rest of the watershed network" was the theme of a Fisheries Conference held in Juneau in 1987. (AFS, Benda, 1997). Headwater stream systems control the release of sediment to the rest of the stream system. Thus, selective harvest of larger trees can affect headwater functioning.

Current models do not account for the stochastic nature of headwater streams, nor is current knowledge adequate to characterize or predict impacts to these streams or the total consequences of management actions around them (AFS, Benda, 1997). Headwater streams are vital sources of energy for anadromous salmonid streams in S.E. Alaska (AFS, Wilpfli, 1997). The Wilpfli studies showed that alternative to clearcutting (ATC) methods would be much more likely to protect stream functions than clearcutting; and that productivity is very sensitive to timber management.

Comb-39

Headwaters streams are vitally important to the health of the entire watershed network. Their role in controlling and regulating sediment, large woody debris (LWD) influx, and food for lower drainages has previously not been recognized. Headwater streams would have received more protection under PacFish than they did under the 1997 Tongass Land Management Plan.

Those additional levels of protection should be applied Forest-wide and should be implemented the Emerald Bay project. Because the Forest Plan fails to be responsive to the latest science, and implement adequate protective standards, the Project cannot tier to the plan, but must impose necessary protections at the Project level.

The DSEIS Lacks Adequate Discussion of Impacts to Wetlands

Over 70 percent of the entire Emerald Bay project area is wetlands. More than 400 acres of wetland are proposed to be logged and over 4 miles of roads built through wetlands. We remain concerned that the continuation of the existing hydrological flow patterns will be harmed by timber harvest and road construction. Many units are crisscrossed by streams and contain wetlands. The DSEIS does not contain enough information on mitigation of impacts on wetlands to assure the public or decision-makers that no significant harm will be done to important fish and wildlife habitats within the many wetlands contained in the project area.

Comb-40

Currently, the Tongass National Forest does not have an approved method to evaluate the effectiveness of BMPs related to impacts of management activities on wetland functions and values." It is almost unconscionable that this task has not been completed in the more than six years the Tongass Plan has been in place. By utilizing the collective resources of the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency, a system for evaluating impacts to wetlands and wetland functions could be developed in a collaborative way. Until this task is done, the FS should be very conservative in wetland management. This project does not take a conservative approach with wetlands.

The SDEIS Fails to Fully Discuss Mitigation and Monitoring

Unit Cards reveal an extensive and expensive list of mitigation and monitoring tasks associated with the logging of the project's units. Typical mitigation and monitoring requirements include directional falling, wind firmness mitigations, setbacks around v-notches, areas of split line, partial, or full suspension yarding, enlarged buffers, seasonal restrictions, special tree leave requirements to meet VQO's, un-even management prescriptions, checking for the success of natural regeneration, harvest restrictions on steep or un-stable slopes, avoiding heavy equipment use and using skyline logging on McGilvery soils, and the use of BMPs for roads and stream crossings.

The Forest Service may not have the funds or the capability to carry out their obligations for implementing Mitigation Prescriptions, in particular the ability to monitor the operators for compliance. As noted above the requirements for this sale are extensive. Though the DEIS notes that the Forest Service is dependant on future funding in regard to the issue of their ability to carry out the SDEIS's prescribed mitigations, they fail to reveal their past success in meeting these obligations. This information is necessary if reviewers are going to be able to assess the viability of the Mitigation Prescriptions. We request that this information be provided and discussed.

Comb-41

Information Provided in Appendix A is Unclear and Misleading

Appendix A purports to answer the question of why the Emerald Bay Timber Sale has to take place. The rationale for the Forest Service's answer to the "Why Here, Why Now" question is based on the faulty Market Demand Analysis found in 1997 TLMP. The Forest Service's admitted misapplication of the Brooks and Haynes Market Demand projections has resulted in an excessive level of timber sale project preparation and an inflated ASQ. This in turn makes Table A-2, Pipeline Pool Volume, completely out of touch with reality. This is borne out by the Forest Service's own cut and sold levels for the last 4 years.

A secondary result of the Forest Service's excessive level of timber sale planning is an un-warranted loss to the U.S. treasury of millions of dollars for every large timber sale project the Forest Service is preparing. Indeed the current Tongass Timber Program can only be justified if it is considered an extremely in-efficient jobs program for Forest Service Timber sale planners. Appendix A needs to be up-dated with a new 10 year projection of Market Demand. In answer to the "Why Here, Why Now" question, an accurate answer would be "Not Here, Not Now".

Comb-42

Table A-3 of the SDEIS shows that there are 234 MMBF of timber volume "enjoined in litigation". This is inaccurate information and must be corrected with additional analysis and write-up. The public and decision-makers should be provided with a detailed list of the sales being appealed, those currently being litigated and those which are enjoined by a court. The table is misleading by overstating the amount of timber that cannot be cut because of a court order.

Additional Issues Of Concern

1. The DSEIS (at p.2-7) concludes that Alternative C "is economically infeasible under foreseeable timber markets." This conclusion is not supported by information or analysis contained in the DSEIS. How does the Forest Service predict "foreseeable timber

Comb-43

Appendix D

markets”? This is different from the “demand” analysis supposedly contained in Appendix A. If the Forest Service is going to rely on such a statement, NEPA requires it to provide supporting information and analysis in the DSEIS.

Comb-43
cont.

2. In describing Alt. D, the DSEIS notes (at 2-8) that the road “decreases logging costs and conversely increases net stumpage value” by shortening helicopter logging distances. Where is the data and analysis supporting this statement? Aren’t base rates, base rates, regardless of the logging method used?

Comb-44

3. The DSEIS (at 2-10) notes that “Alternative D may be uneconomical to operate under current market conditions.” What are those current conditions? Why doesn’t the DSEIS contain a description of existing market conditions and expectations regarding future conditions? NEPA requires information in an EIS to be of high quality. The Forest Service must disclose information to support its assumptions or conclusions regarding the economic viability of particular alternatives. This DSEIS fails to provide the decision-maker and public with a clear basis for choice among options. See 40 C.F.R. 1502.14.

Comb-45

Planning Record Requests

Recent NEPA FEIS’s have done an inadequate job in presenting the public record of substantive comments. Rather than including substantive comments in their entirety, the Forest Service in FEIS’s such as Three Mile and Gravina have been cherry picking small sections of comments. These sections do not allow the reviewing public to read and understand the arguments being made by the commenter. This in turn makes it impossible for the general public to assess the response made to the comments. We request substantive comments be included in their entirety in the FEIS.

Comb-46

Please insure that a complete planning record is available on disc. Recent Planning Record CDs have not included many of the documents listed on the Planning Record Index.

Comb-47

Thank you for this opportunity to comment on the Emerald Bay Draft SEIS.

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Appendix D

Forest Service Response to the Combined Conservation Groups Letter:

Comb-1:

The development of alternatives is discussed in Chapter 2 of the Draft SEIS. Chapter 2 also discloses the alternatives that were analyzed in detail and those that were considered but not analyzed in detail. Each alternative provides a different response to the key issues. Additional alternative discussions and rationale have been updated for the Final SEIS in Chapter 2 and Chapter 3.

Comb-2:

Financial efficiency of the proposed alternatives is one of many criteria used to determine whether an alternative is analyzed in detail. The development of alternatives is discussed in Chapter 2 of the DEIS and additional clarifying information has been added to the Final SEIS. Additional information can be found in Chapter 3 under the “Transportation”, and “Timber Economics” sections. Each alternative provides a different response to the key issues.

Since the start of analysis on the Emerald Bay project, the demand for timber has fluctuated with current conditions. There has been considerable loss of market demand in the past, making some of the alternatives model negatively. This does not mean that conditions could not improve in the future to make these alternatives more advantageous. Recently, timber prices have showed improvement, but some recent sales have not sold. This could be attributable to a number of factors such as timber being made available from other sources, available or perceived supply of timber by the operators, or the high price of fuel. Appendix A discusses many of these factors that need to be considered. Even if a sale does not sell at the present time, it still meets a need to respond to future demand. These other demand needs are described in Appendix A under “Pool 1 and Pool 2”.

Alternative C has been retained as one of the alternatives analyzed in detail because it represented the original intent to explore the possibility of longer-distance selective helicopter yarding. Alternative C still addresses the issue of effects of roadbuilding on roadless characteristics and an OGR, and the Responsible Official needs to know what those trade-offs are before the decision is made. While this alternative may have been viable at the time of the project's inception, it is no longer financially sound under current market conditions. Information concerning the financial effects of Alternative C is found under the “Timber Economics” section of Chapter 3.

Comb-3:

The Proposed Action, Alternative C, disclosed in the original Draft EIS remains unchanged. This is discussed on page 1-2, and page 2-5 of the Draft SEIS. The Summary and Chapter 1 of the Final SEIS have been updated to help clarify this issue. The Proposed Action does not necessarily have to become the Preferred Alternative or the Selected Alternative. In this way, the Proposed Action is not necessarily predisposed to become the Selected or even the Preferred Alternative. And, the Preferred Alternative does not necessarily become the Selected Alternative. For a complete understanding of the project and the alternatives analyzed, the entire document must be read.

Comb-4:

Alternative maps in the Final SEIS have been updated. Instead of the harvest system, they now display the harvest method (uneven-aged or even-aged). Figure 3-1 was updated to improve the contrast of the various land areas. Additional figures and tables have been added to the Final SEIS to help clarify issues that readers have had difficulty understanding.

Comb-5:

Public Investment Analysis is described in the Timber Economics section of Chapter 3 and the Forest Plan FEIS, Part 2, Chapter 3, and the Forest Plan SEIS Volume 1. The average Region 10 Budget Allocation costs and management expenses are subtracted from the net stumpage (revenue) to determine net value to the public. The costs and management expenses include environmental analysis, sale preparation, sale administration, and engineering support. The “Timber Economics” section of Chapter 3 also describes the factors, such as project area terrain and access that affect variation in costs of sale preparation and administration, compared between alternatives.

The financial efficiency analysis was performed as part of the NEAT analysis for this project and has been summarized in the Alternative Comparison Table in Chapter 2 and in the “Timber Economics” section of Chapter 3. The NEAT program is the Forest’s approved method for comparing the financial efficiency of alternatives for environmental analyses.

Part of the Forest Plan direction for Timber Production LUD, as stated in the Purpose and Need in Chapter 1 of the Emerald Bay SEIS provides for: “contributing to the local and regional economies of Southeast Alaska” and, “Support a wide range of natural resource employment opportunities within Southeast Alaska’s communities” and, “Provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all

renewable forest resources.” Potential employment is summarized in the “Timber Economics” section of Chapter 3, “Logging-related Employment and Income by Alternative”. “Managing the timber resource for the production of saw timber and other wood products in an economically efficient manner” (Purpose and Need in Chapter 1) does not mandate that the Forest Service will make money by offering timber, nor does the economic analysis state that this will be the case.

Comb-6:

The Road 6402 and Rio Beaver sales were included in the dataset for the Transactional Evidence Appraisal system because they received bids, and were awarded. At the time of advertisement, they were economical. Changes in the market conditions since award of the sales are the reason for the cancellation. Including the sales in the dataset is appropriate because they indicate the value of the timber during the quarter they were appraised.

Sales sold to Gateway Forest Products were also economical during the quarter they were appraised. Changing market conditions caused the subsequent no-bids. Including them in the dataset is appropriate, as they indicate the value of the timber during the quarter they were appraised.

It is appropriate to include sales that were pre-loaded in the Transactional Evidence Appraisal dataset, without the costs associated with pre-loading. The sales were appraised according to the existing conditions, which included the new roads in the transportation system. The Emerald Bay timber decision does not include pre-loading. If pre-loading of this sale was anticipated at the decision, then the cost of pre-loading would be captured in the financial efficiency analysis, and would not be included in the inputs for the NEAT model.

The NEAT analysis used for the Draft SEIS was based on data from the Transactional Evidence Appraisal for the second quarter of 2003. The Final SEIS for Emerald Bay alternatives have been re-analyzed using TEA data from the first quarter of 2004, the most recent update to the NEAT model. The new analysis indicates that market conditions have fluctuated, but the ranking and overall viability of the alternatives does not change with the new information. The “Timber Economics” section of the Final SEIS has been revised to reflect these changes.

There is a competitive market for large timber sales on the Tongass National Forest. In January of 2003, the Washington Office conducted a review of the Transactional Evidence Appraisal system for Region 10. They determined that the market situation for timber sales was marginally competitive on the Tongass. According to FSH 2409.34, the appraised value (expected bid) of a timber sale is reduced by a roll-back factor. One of the purposes of the roll-back factor is to capture sufficient competition to ensure a fair market value. The handbook direction further describes roll-back factors of 0 to 5 percent for non-competitive markets, and 10 to 20 percent for competitive markets. The review team recommended a rollback factor of 10 percent for the Tongass.

The NEAT model calculates the expected bid value for a project based on differences between the project’s timber value and logging costs and those of the sales in the Transactional Evidence Appraisal Database for the base period. Simply calculating the average bid rate for sales does not capture these differences, and does not support the argument that the NEAT model is overestimating the return to the government. Timber sale appraisals are prepared prior to timber sale advertisement and are a more accurate method for determining the value of a timber sale. The NEAT program provides relative estimates of value that the decision maker will be able to use in making comparisons between alternatives.

Comb-7:

A financial efficiency analysis has been produced using the NEAT model, and is summarized in the “Timber Economics” section of Chapter 3, in the Final SEIS.

Comb-8:

The market demand analysis and land management decisions resulting from that analysis are outside the scope of the project, as detailed in the “Issues” section of Chapter 1 of the Final SEIS. Appendix A discusses market demand and planning cycles at various levels of interest.

The Forest Service monitors market demand for Tongass timber in a number of ways. Market demand is tracked and reported annually in the Timber Supply and Demand report prepared pursuant to Section 706(a) of ANILCA. In addition to the 706(a) reports, the market demand forecast for Tongass timber (Morse, April 2000) is the Alaska Region’s response to Congressional direction in Section 101 of the 1990 Tongass Timber Reform Act (TTRA).

Subject to appropriations and applicable law, including the National Forest Management Act, section 101 of the TTRA directs the Secretary of Agriculture, to the extent consistent with providing for multiple use and sustained yield of all renewable resources to “seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle.” The

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methodology outlined in Morse is used to set the TTRA goals for the Tongass timber sale program – it is the projected volume needed to meet market demand. The commenter contends that use of the Morse methodology for use in seeking to meet market demand is inappropriate because the Morse methodology includes figures taken from the projections made by Brooks and Haynes in 1997. The commenter notes that actual harvest since 2001 has been significantly below the harvest level projected by Brooks and Haynes. The Forest Service believes that the Morse methodology remains a reasonable and permissible means for gauging the market demand for timber. The Morse methodology does use the Brooks and Haynes projections in one line of its calculations, but Morse emphasized the uncertainty inherent in predicting the future demand for Tongass timber. Her methodology is based on very different factors than those used by Brooks and Haynes, including mill capacity, utilization, volume under contract and others. In addition, the methodology is self-correcting based on actual experience. To the extent that actual harvest is lower than projected harvest, the inventory of timber under contract builds up and the demand for new timber decreases. Morse also pointed out that in terms of short-term economic consequences, over-supplying the market is less damaging than under-supplying it. If more timber is offered than purchased in a given year, the unsold volume is still available for re-offer in future years. The unsold volume would have no environmental effects. Conversely, a shortfall in the supply of timber available for harvest in a given year can be financially devastating to the industry. During low points in the market cycle, timber sale purchases tend to increase before markets recover. Morse also advised the agency to consider the likelihood of delays from administrative appeals and litigation when planning its timber program.

In 1998 through 2000, actual harvest exceeded the Brooks and Haynes projections. During the following 3 years, actual harvest was less than projected. Timber demand is volatile. Given the self-correcting nature of the Morse methodology, the relatively short period in which harvest has been below the Brooks and Haynes projections, and the impact that litigation, injunctions and other factors have had on the ability of industry to purchase and harvest timber during that period, the Forest Service continues to believe that the Morse methodology is reasonable and that the Emerald Bay Timber Sale is an important component in the goal of the timber sale program to seek to meet market demand.

Comb-9:

A financial efficiency analysis has been produced through the NEAT model and is summarized in the “Timber Economics” section of Chapter 3. Additional Socioeconomic analysis and community statistics can be found in the Forest Plan FEIS, Part 2, Chapter 3 and the Forest Plan SEIS Volume 1.

Non-market values and effects on environmental amenities were discussed in the “Timber Economics” section of Chapter 3, which states, “The Forest Service is not required to quantify the non-market benefits and costs associated with every timber sale” (and) “There are no expected significant impacts on resources such as hunting, fishing, recreation, or tourism.”

Comb-10:

The Final SEIS disclosed existing and post-treatment stand composition in the “Silviculture” and “Biodiversity” sections of Chapter 3. Merchantable volume is displayed in “Timber Economics” section of Chapter 3.

Comb-11:

Roadless characteristics are described and the potential effects to them are identified in the “Cleveland Roadless Area” section of Chapter 3. The analysis was updated in the Final SEIS to focus on the effects to the most unique or outstanding characteristics for the Cleveland Roadless Area described in the Forest Plan SEIS Roadless Area Evaluation for Wilderness Recommendations, completed in 2003 at a Forest-wide scale. No Roadless Areas on the Tongass were recommended for Wilderness in the 2003 decision. The conclusion in the Emerald Bay Final SEIS is that the Cleveland Roadless Area will still be eligible for wilderness consideration in the next round of forest planning because only a small portion (1 – 2 percent) on a short span of the western boundary is affected by the proposed timber harvest and roadbuilding. Over 188,000 acres remain unaffected by this project, to be evaluated at a Forest-wide scale.

Comb-12:

Wildlife species on the Tongass are usually analyzed by looking at their respective habitats, and using models as a comparison tool. The Forest Plan Standards and Guidelines for wildlife were designed to maintain habitat capability and therefore sustain viable populations over the long term. The Standards and Guidelines are used in combination with habitat evaluations to analyze project effects and design mitigation (Forest Plan, p 2-5).

Foot surveys were conducted on all streams within units and road corridors. Areas of high concern were avoided during project design. All other streams are buffered or protected by Standards and Guidelines, BMPs, or logging requirements such as split yarding.

While the State's Central Southeast Alaska Area Plan identified the Spacious Bay-Ernest Sound area as a "bio-geographical pinchpoint" for deer, brown bear, and wolves (Garland 2001), the Emerald Bay project analysis took this into account, and discusses the implications for each of these species. In the "Biodiversity and Old Growth" section, under "Habitat Connectivity" it discloses that of the 5-mile wide portion between Spacious Bay and Emerald Bay, the portion of the project area that is available for timber harvest is approximately 0.75 mile. The "Wildlife" section of Chapter 3 further discusses the effects of the proposed alternatives on bear, deer, and wolves. Unit Cards disclose vegetative treatments or needs for wildlife as well as the stand prescriptions. There should be no effect on the ability of deer to move along Cleveland Peninsula, although decreased forest canopy in harvest units would decrease snow interception and decrease deer mobility in the winter. Bears and wolves are not tied specifically to vegetative cover and there should be no effect on the ability of bears and wolves to move along Cleveland Peninsula following harvest. A brown bear buffer would be established along Emerald Creek in compliance with Forest Plan direction. Design features of the alternatives are disclosed in Chapter 3 that will reduce potential adverse effects on fish and wildlife (Transportation, Marine, Biodiversity, Wildlife sections).

Comb-13:

The effects of the alternatives on old growth and coarse-canopy forested habitat are disclosed and discussed by alternative in the "Biodiversity and Old Growth" section of Chapter 3. Volume classes 6 and 7 are used as the current best available portrayal of coarse canopy (Cole 2005).

Forest Plan TIM 111-2, Silviculture Examination and Prescription, refers to stage II intensive inventory. Forest Plan TIM-112 provides direction regarding timber information gathering and maintenance. Inventory information was used to diagnosis the project stands, develop proposed treatments and alternative treatments. Stand files, which include the timber inventory and silvicultural prescription, are maintained on the District. Stand information, existing and post-treatment, is summarized in "Silviculture" section of Chapter 3, the unit cards and the stand prescriptions in the project record. Stand prescriptions include detailed information regarding diameter class distribution and species composition. Prescriptions would be prepared for the Selected Alternative prior to the signing of the Record of Decision.

The natural vegetation of the project area is discussed in the "Silviculture" and the "Biodiversity" sections of Chapter 3. Information regarding species composition, age, stocking, and diameter of stands proposed for treatment is included in the "Silviculture" and the "Biodiversity" sections of Chapter 3 and the stand prescriptions in the project file.

The Old-growth Cumulative Effects section discusses the changes in old-growth forest since 1930. This date was used instead of 1954 because of the earlier identified harvest in the project area.

The effects of changes in old growth, including fragmentation and edge, are discussed in the "Biodiversity" section of Chapter 3. Old-growth connectivity and the effects of roads and harvest are discussed in the "Biodiversity" section, "Threatened, Endangered, and Sensitive Species" section, and the "Wildlife" section of Chapter 3.

Comb-14:

The Forest Plan EIS, including Appendix N, and the Record of Decision (pg 39) concluded that the old-growth conservation strategy provided a high level of confidence so that even with the maximum allowable timber harvest, the Plan would provide for viable populations of species. Appendix N summarizes the results of the panels, panel opinions and how concerns about particular species were addressed in the final Selected Alternative.

The amount of timber harvested during the first 5 years under the new Plan is less than half the maximum rate modeled in the Forest Plan (5-year Review). The need for review of the old-growth strategy has been substantially reduced due to the lower levels of harvest. However, preliminary work in support of the conservation strategy review has begun, and the Tongass will be conducting this review with interagency partners and the research branch of the Forest Service in 2005.

Viability is a Forest-wide issue. The Forest Plan has been found to be adequate in regard to viability (Forest Plan FEIS, Appendix N). Under 40 CFR 1502.20, we may tier a project-level analysis to a broad program-level environmental impact statement, such as the Forest Plan FEIS. The Forest Plan Standards and Guidelines for wildlife were designed to maintain habitat capability and therefore sustain viable populations over the long term. The Standards and Guidelines are used in combination with habitat evaluations to analyze project effects and design mitigation (Forest Plan, pg. 2-5).

The 5-year Forest Plan review process has identified and is in the process addressing these Forest-wide issues.

Comb-15:

The MII selected for analysis for this project are shown and discussed in the "Wildlife" section of Chapter 3 of the EIS. Rationale for selection or non-selection is also disclosed in this section.

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The Forest Plan Standards and Guidelines for wildlife were designed to maintain habitat capability and therefore sustain viable populations over the long term. The Standards and Guidelines are used in combination with habitat evaluations to analyze project effects and design mitigation (Forest Plan, p 2-5).

The Alaska Department of Fish and Game was consulted concerning population trends of species found in the project area. Population trends for MIS on the Tongass are probably not affected as much by forest management and roadbuilding as projected in the Forest Plan. The amount of timber harvested during the first 5 years under the new Plan is less than half the maximum rate modeled in the Forest Plan (5-year Review).

Comb-16:

Goshawk surveys and effects are disclosed in the "Threatened, Endangered, and Sensitive Species" section of Chapter 3 and in Appendix B. In addition, following TPIT guidelines, field personnel are trained in the identification of raptors, and sightings are reported to a biologist for follow-up.

Value Comparison Units (VCUs) were used to analyze effects on goshawks. Table TES-2 in the Threatened, Endangered, and Sensitive Species section of Chapter 3 shows the percent of the project area that would provide goshawk habitat under the four alternatives.

Table TES-2 shows that there is a 3 to 4 percent decrease in goshawk habitat over the VCU under the action alternatives. This, in combination with effects of different silvicultural methods, and the potential for disturbance and use of a buffer around nests, was used to assess effects of the actions.

Comb-17:

The Regional Ecology Program Leader who was responsible for drafting these Standards and Guidelines in the Forest Plan advises that such broad direction was not intended. There are few issues related to herons and raptors that were not already addressed under TES. The primary motivation was to protect nests of these species in the event such features were located during project planning (TPIT 1998). Following TPIT guidelines, field personnel are trained in the identification of herons and raptors, and sightings are reported to a biologist for follow-up.

The windfirm nest buffer and seasonal restriction has been added to Unit Card 10 for the red-tailed hawk nest. Disturbance around occupied nests during the active nesting season (March 1 to July 31) will be prevented, consistent with standards and guidelines. These would be applied to other raptor nests if found.

Comb-18:

The TPIT (1998) clarified direction for endemic terrestrial mammals. The intent of the direction is focused on islands that occur on the Tongass, and particularly smaller islands where potential risks to endemic taxa from management activities may be greater. This project is located on Cleveland Peninsula and is not an island.

Brown creepers and red squirrels are two small mammal species dependent on large, high-volume old-growth trees and snags and are among the MIS species selected for analysis for this project (EIS Chapter 3, "Wildlife" section). Old growth is discussed extensively under the section titled "Biodiversity and Old Growth" in Chapter 3.

Comb-19:

Specific population trend information for marten in the project area is not available. In consultation with ADF&G, they estimated relative abundance and trends for furbearer populations for Southwestern and Southeastern Alaska (ADF&G 2002). They estimated marten in GMU 1B as common and as having a stable population trend. Value Comparison Units (VCUs) were used to analyze direct and indirect effects for marten. There is no project area or VCU-specific marten population data.

The Forest Plan EIS, including Appendix N, and the Record of Decision (pg. 39) concluded that the old-growth conservation strategy provided a high level of confidence so that even with the maximum allowable timber harvest, the Plan would provide for viable populations of species. To address concerns for marten, additional measures were added. These include retention of more forest structure in higher-risk areas (included in this project); access management to reduce mortality where trapping and hunting has been identified as a serious risk (not relevant to this project); and maintaining connections between habitat blocks (small reserves, beach fringe and riparian buffers).

The amount of timber harvested during the first 5 years under the new Plan is less than half the maximum rate modeled in the Forest Plan (5-year Review). The need for review of the old-growth strategy has been substantially reduced due to the lower levels of harvest. However, preliminary work in support of the conservation strategy review has begun, and the Tongass will be conducting this review with interagency partners and the research branch of the Forest Service in 2005.

Viability is a Forest-wide issue. The Forest Plan has been found to be adequate in regard to viability (Forest Plan FEIS, Appendix N). Under 40 CFR 1502.20, we may tier a project level analysis to a broad program-level environmental impact statement, such as the Forest Plan FEIS. The Forest Plan Standards and Guidelines for wildlife were designed to maintain habitat capability and therefore sustain viable populations over the long term. The Standards and Guidelines are used in combination with habitat evaluations to analyze project effects and design mitigation (Forest Plan, p 2-5).

The citation, Robertson et al 2000, could not be located and a full reference was not included in the letter.

Comb-20:

There are no known wolf dens in the project area. Following TPIT (1998) guidelines, field personnel report wolf sightings and potential den sites to the biologist for follow-up. In addition, ADF&G maintains a list of known den locations and are contacted to inquire about any known sites within project areas. Mitigation for protection of wolf dens (if found) is included in the project, as shown in Draft SEIS Appendix D, W24. The project also includes mitigation for disturbance from roads around known active dens.

If a den site is found, the biologist would be contacted. Any additional mitigation, such timing, buffer, or flight path, for helicopter use would be evaluated.

Comb-21:

The field trip in 2000 included biologists from USFS, USFWS and ADF&G. Notes indicated that they did not find important late summer season brown bear feeding sites (M. Brown, notes in project record). They walked the proposed road corridor through the OGR and most of the anadromous habitat closest to the estuary at Emerald Bay. Later surveys came to different conclusions, as discussed in the Draft SEIS, 3-84. Differences may be due to walking different locations (notes said the 2000 trip walked the “corridor”), different times of the year, or difference in survey protocols. The Draft SEIS included the new information.

Surveys focused on Class I streams. As shown on the unit card maps, the main drainage is Class I, while the segments that branch off to the east are Class II and higher streams.

As shown in the unit card description for Unit 12, the unit boundary would be modified to exclude brown bear foraging habitat. Please refer to the discussion of brown bear under the “Wildlife” section of Chapter 3.

Comb-22:

The project area lies between goat populations from Vixen Inlet to the south and the Twin Rift/Lake McDonald area to the north (B. Porter, ADF&G, pers. comm.). The Final SEIS has clarified where the escape terrain and high-use areas are (“Wildlife” section Chapter 3). Mountain goat studies on the Cleveland Peninsula by Smith and Raedeke in 1982 and by Fox et al, 1989, were the sources for determining the definition of escape terrain in this analysis. This analysis uses that recommendation of 50 degrees (120 percent). No escape terrain would be harvested under any alternative and only 3 acres would be harvested in high-use areas. The change in high-use habitat would be less than 1 percent.

There are no known kidding or nursery areas, and no areas of concentrated winter use. As a result, there are no goat population survey transects in the area, but it is possible that individuals could move through the area, particularly males moving between populations during the fall breeding season.

The discussion of effects to mountain goats is in the “Wildlife” section in Chapter 3. The Forest Service and ADF&G have been working together on mountain goat studies on the Cleveland Peninsula studying population, distribution, movements and genetics. Currently there is no goat-hunting season, but the analysis did address changes in vulnerability if a hunting season was re-opened. The opening and closing of seasons are controlled by ADF&G. The hunting seasons have been closed due to over harvest of goats in the past and the relative small and isolated nature of the populations.

Mountain goat habitat and alternative effects are discussed in the “Wildlife” section of Chapter 3. The “Wildlife Cumulative Effects” section discusses mobility concerns by species. No mobility concerns were identified for mountain goats. With no known populations of mountain goats in the project area it is unlikely that there would be any disturbance due to noise generated by helicopter traffic during logging operations.

Comb-23:

Analysis #1: The Forest Plan directs the development and use of wildlife models. The deer model is approved for use as a tool for evaluating deer habitat on the Tongass National Forest. The validation and appropriateness of this model are beyond the scope of the Emerald Bay project analysis. The deer model was used according to current direction Forest direction (2000 Monitoring Report, Cole 2005) for deer habitat capability and deer density. Predation effects are factored into the 18

Appendix D

deer/mi² requirement and applying the 36 percent reduction factor would double count the effects (Forest Plan FEIS page 3-404 & 3-405). The predation factor has now been applied to hunter demand calculation; results are displayed in the Subsistence section of the Final SEIS. The 100 deer multiplier was applied correctly. ADF&G did not suggest a different multiplier for the Emerald Bay project. The deer model results give the decision maker a relative comparison in deer habitat between the Emerald Bay project alternatives.

Comb-24:

Analysis #2: Deer model coefficients are adjusted periodically to reflect better information. Revised versions of the deer model have been used over time. The deer model was used according to current direction (2000 Monitoring Report, Cole 2005). The volume class / volume strata issue is being evaluated as part of the Tongass 5-year review (concern 04-04); a team has been assigned to the task. It is outside the scope of the Emerald Bay project analysis to arbitrarily re-write the model. The deer model maintained and updated at a Forest level.

Comb-25:

Analysis #3: The deer model is but one tool used in the Emerald Bay analysis of deer habitat. Field observations from wildlife biologists and other professionals were utilized to document deer use and movement patterns, research papers were consulted and incorporated, consultation and personal communications were held with ADF&G and USF&WS personnel, ADF&G data was studied and incorporated, in addition to public scoping comments and local knowledge. This information has been used to develop the design and range of alternatives in addition to mitigation measures such as the removal and storage of the proposed road in Alternatives B and D to reduce the potential for motorized disturbance. Habitat connectivity and concerns over “pinchpoint” effects were analyzed in the “Wildlife Cumulative Effects” section in Chapter 3. These include edge effect on habitat, effects of roads, and deer movement.

Comb-26:

The rationale to classify productive old-growth forest by high, medium, and low volume strata is discussed in the Forest Plan Final EIS (Chapter 3, Biodiversity, pages 3-18 to 3-19). Use of the volume strata data set for deer habitat modeling is consistent with the Forest Plan (Forest Plan FEIS page 3-365).

Coarse-canopy stands would remain untreated and unaffected by the alternatives as disclosed on page 3-82 of the Draft SEIS. Volume classes 6 and 7 are used to depict coarse-canopy stands as per Forest-wide direction (Cole 2005).

Discussion of stand structure changes in regards to habitat conditions is included in the “Biodiversity”, “Threatened, Endangered, and Sensitive Species” and “Wildlife” sections of Chapter 3.

Comb-27:

High grading is not part of the Proposed Action or of any alternative. Existing and post-treatment stand composition is displayed in the “Silviculture” section of the Final SEIS, Chapter 3. Post-treatment stand composition of cedar, a desirable species, slightly increases in Alternatives B, C, and D in stands proposed for group and single-tree selection. Hemlock decreases by a corresponding percentage. Spruce composition remains the same. Post-treatment average stand diameter is displayed by alternative in Tables ST-3, 4, and 5 of Chapter 3. For the partial- and selection-cut prescriptions, the average stand diameter remains the same both pre-harvest and post-harvest under all alternatives. See also the unit cards for more detailed stand and harvest information.

Comb-28:

The Tongass Forest Plan has an objective in the Old-growth LUD that states “to the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives” (Forest Plan, page 3-75). Roads are constructed outside the beach and estuary fringe where possible (“Alternative Development” and “Alternative Not Analyzed in Detail” sections of Chapter 2, and the “Transportation” section of Chapter 3). Forest Plan Standards and Guidelines allow for road construction through OGRs and estuary buffers if other alternatives are not feasible.

There are two alternatives that would build no road through the Old-growth LUD (Alternative A, No Action, and Alternative C). The “Transportation” section of Chapter 3 discusses alternative road routes that were considered and their feasibility. Additional information has been added to this section to clarify the analysis and finding that no other feasible road routes exist. Roads constructed through the Old-growth Reserve as part of Alternatives B and D would be built to standards that minimize adverse impacts to fish and wildlife (Transportation section). This road would be placed in storage and the LTF would be removed after harvest operations are complete (SEIS, Chapter 2, Alternatives Considered in Detail and Chapter 3, “Biodiversity”, “Marine” and “Transportation” sections).

The estimated size of rock pits has been updated. Rock pit sizes are estimated to be approximately 1 acre each. A total of approximately 23 acres in the OGR would be affected by road clearing, rock pits, and other clearing under Alternatives B and D, based on an estimated 55-foot clearing width for the 2.2 miles of road and 2 rock pits and sortyard. The LTF proposed within the OGR in Alternatives B and D would affect less than 1 acre (SEIS, Chapter 3, Biodiversity and Old Growth section). Impacts to individual resources are discussed in the respective resource sections of Chapter 3.

Comb-29:

The effects of the project's proposed road construction and other harvest activities on fish, wildlife, hunting, fishing, hydrologic and geomorphic processes, and other resources have been analyzed, quantified where possible, and discussed in the respective resource sections for each of these resources in Chapter 3 of the SEIS. Also discussed is the rationale for conclusions regarding the construction standards, and disposition of the proposed road and LTF.

Because of the distance from population centers, and potentially rough sea conditions (and removal of the LTF as described on Draft SEIS, page 2-1 and Final SEIS, Chapter 2), use after completion of the project is expected to return to existing levels. Without the LTF, boats would have to anchor offshore and it would be difficult to offload OHVs. In addition, monitoring of the effectiveness of blocking use on roads shows that bridge removal was 100 percent effective in blocking vehicle traffic at the surveyed sites. The mound-and-pit technique was less successful, at about 78 percent (Tongass 2000 Monitoring and Evaluation Report). The first log-stringer bridge that would be removed on the proposed road would be 1½ miles in.

Comb-30:

Alternative B proposes to construct 5.8 miles of classified road and 0.4 miles of temporary road. Alternative D proposes to construct 3.8 miles of classified road. The Final SEIS has been updated to display the miles of classified and temporary road to be constructed, although the overall total road miles in Alternatives B and D have not changed. All temporary roads would be decommissioned. The road leading from the LTF would be placed in storage and not decommissioned (obliterated). The visual site distance of road leading from the LTF is about 700 feet. Specific mitigation outlined in Chapter 2 would be applied to this section of road. The road storage methods to be used in Alternative B and D are described in Chapter 2 and the "Transportation" and "Marine" sections of Chapter 3 of the EIS. The Forest Service does not contend that placing debris on the road surface is synonymous with steps that result in removal, de-compaction, or scarification. It claims that these procedures are anticipated to be effective in eliminating motorized use of the road and LTF.

Construction location and standards of classified roads would be specified in the timber sale contract if Alternative B or D were selected. Construction materials are likely to be shot rock but a wood chip base could be considered, depending on cost and availability. A wood chip road base may be more cost effective and may revert to natural condition sooner than a base of shot rock. Wood chips have the potential to leach out minerals (tannins) into ground waters. The construction location and standards of temporary roads are agreed upon by the Forest Service and timber purchaser prior to commencement of construction. Materials are likely to be the same as those used for the classified roads.

Removal (decommissioning), de-compaction, or scarification of the road surface were considered, but not recommended due to concerns about other resources. The road, camp, sortyard and LTF locations are anticipated to revegetate within 5 to 10 years after harvest operations have been completed. The removal of the road is not warranted, as a future silvicultural entry is likely with the adoption of uneven-age stand prescriptions. Decommissioning of this road would make the next entry more expensive and likely result in more sediment potentially reaching streams. The "Transportation" section of Chapter 3 discusses some the trade-offs that were considered for travel management of the project area road system.

The timber purchaser would complete road storage and reclamation of the LTF and visible portion of the road from the LTF. The work would only take several hours to complete with an excavator and should not cost more than 500 dollars.

Comb-31:

Information has been provided in the Final SEIS to help answer and clarify these questions. See the response to comment Comb-28. The analysis of the exploration of alternative road routes can be found in the "Transportation" section of Chapter 3. Alternative road routes were found to be very costly, involved greater distances through OGRs or had other adverse effects resulting from road construction on steep slopes. The effects on the medium OGR are discussed in the "Biodiversity" section of Chapter 3 and options to relocate the medium OGR can be found in Chapter 2. The rationale for not moving the medium OGR is that it encompasses some of the best habitat in terms of high-volstrata POG, it contains lower elevations and southerly aspects favoring deer winter range, and provides a corridor connection across the "pinchpoint" of the Cleveland Peninsula. In addition, the proposed road will be active for a short duration and is built to less-intrusive design specifications, thereby reducing the potential for adverse effects.

Appendix D

Comb-32:

The "Purpose and Need" section of Chapter 1 discusses the need for entering this project area. Appendix A also discusses why this timber sale was proposed and how it fits into the Tongass National Forest's timber program. The location of timber sale projects is based first on the land allocation decisions in the Forest Plan. The Timber LUD in the project area meets this criteria and has been determined to contain timber suitable for management. The Roadless Area Conservation Rule of 2001 is discussed in Chapter 1 and the "Cleveland Roadless Area" section of Chapter 3. The Chabot-Andrews amendment did not become law.

Comb-33:

Roadless characteristics are described and the potential effects to them are identified in the "Cleveland Roadless Area" section of Chapter 3. The analysis was updated in the Final SEIS to focus on the effects to the most unique or outstanding characteristics for the Cleveland Roadless Area described in the Forest Plan SEIS Roadless Area Evaluation for Wilderness Recommendations, completed in 2003 at a Forest-wide scale. No roadless areas on the Tongass were recommended for wilderness in the 2003 decision. The conclusion in the Emerald Bay Final SEIS is that the Cleveland Roadless Area will still be eligible for wilderness consideration in the next round of forest planning because only a small portion (1 – 2 percent) on a short span of the western boundary is affected by the proposed timber harvest and roadbuilding. Over 188,000 acres remain unaffected by this project, to be evaluated at a Forest-wide scale.

Effective May 13, 2005, the Department of Agriculture revised the 2001 Roadless Area Conservation Rule (Subpart B of the Title 36, Code of Federal Regulations, Protection of Inventoried Roadless Areas), by adopting a new rule, Special Areas; State Petitions for Inventoried Roadless Area Management. The 2005 Roadless Rule establishes a petitioning process that provides governors an opportunity to seek establishment of or adjustment to management requirements for National Forest System inventoried roadless areas within their States. Submission of a petition is strictly voluntary, and management requirements for inventoried roadless areas are guided by the Tongass Forest Plan until and unless these management requirements are changed through a State-specific rulemaking. If the Secretary of Agriculture accepts a petition, the Forest Service shall be directed to initiate notice and comment rulemaking to address the petition. Further details on the history of the Roadless Rule and how it affected development of this project are available in the project record.

In December 2003, as part of a settlement agreement reached in the State of Alaska v. USDA, the Department adopted a final rule that temporarily withdrew the Tongass National Forest from the provisions of the 2001 Roadless Rule. Under the approach established in this 2005 Final Rule, management of inventoried roadless areas on the Tongass will continue to be governed by the existing Forest Plan, unless changed through a State-specific rulemaking as described above. This 2005 Rule negates the need for further Tongass-specific rulemaking anticipated in the 2003 temporary withdrawal.

See response to comment Comb-33 above. The 2005 Roadless Rule negates the need for further Tongass-specific rulemaking anticipated in the 2003 temporary withdrawal.

Comb-35:

The plant survey report in the planning record is dated October 26, 1998. The BA/BE has been updated and corrected.

Comb-36:

The direct and indirect effects of harvesting on soils, soil productivity, surface erosion, and mass movement are disclosed in the "Soils and Geology" section of Chapter 3. This section cited the references on which the conclusions are based. The effects of proposed activities on fisheries resources are disclosed in the "Fisheries Resources" section of Chapter 3. These slope areas are also discussed on the unit cards.

Table Soils-2 in Chapter 3 lists the approximate acreage of slopes over 72 percent gradient, in Units 3, 5 and 6. The soil scientist identified these slope areas as operable for timber harvest due to low landslide potential. Harvest on these steep slopes would be partial cut with full suspension via helicopter yarding in all three action alternatives.

Comb-37:

Impacts to wetlands are disclosed in the "Water" section of Chapter 3 and in the "Soils, Floodplain, and Wetland" resource report (project file). They note that 16 acres of estuary habitat occur in the project area at the mouth of Emerald Bay. It also notes that there are 55 acres of floodplains and alluvial fans. All of the action alternatives avoid road construction or timber harvest within these areas.

The road alignment in Alternatives B and D travels through a portion of the 1,000-foot estuary buffer on the way to the harvest units. There would still be a forested distance of about 500 feet between the road and the estuary habitat. Due to the

gentle terrain and vegetative buffer, adverse impacts to the estuary are not anticipated. The road location was selected to avoid and minimize adverse impacts to wetlands. Also see the response to CWP-76.

Comb-38:

Impacts to streams and water are disclosed in the “Water” and “Fisheries” sections of Chapter 3. Forest Plan Standards and Guidelines and BMPs are designed into all of the harvest activities affecting watersheds and fisheries. Measurable impacts are not anticipated (“Fisheries” section of Chapter 3). Standards and Guidelines were designed using the best available science and meet or exceed Anadromous Fish Habitat Assessment (AFHA) recommendations. BMPs are incorporated to protect water quality on Class IV streams. The National Marine Fisheries Service (NMFS) has been consulted on the essential fish habitat for this project and they have sent a concurrence letter which is in the project planning record. As a result of the ground surveys conducted by fisheries personnel, areas with high risk were identified in the field and avoided.

Comb-39:

Measurable effects to fisheries are not anticipated due to the implementation of Forest Plan Standards and Guidelines and the additional use of log-stringer bridges (“Fisheries” section and “Water” section, Chapter 3).

Comb-40:

Impacts to wetlands are disclosed in the “Water” section of Chapter 3. Features that have been incorporated into the project design to reduce effects on wetlands include outsloped roads, narrower clearing widths, and a 14’ road width rather than a 16’ road width. Other features are the use of log-stringer bridges and the use of helicopter logging and partial cutting. Also see the response to Comb-38.

Comb-41:

Monitoring the project during harvest activities is discussed in Chapter 2 of the EIS. Routine implementation monitoring is part of timber sale contract administration. Timber sale contract administration would be fully funded if Alternative B, C, or D is selected.

Information on past monitoring is available from the Tongass National Forest. The results of annual monitoring are summarized in the Tongass NF Annual Monitoring and Evaluation Report. This was discussed in Chapter 2 of the EIS.

Comb-42:

The information in Appendix A has been updated. Demand is based on installed mill capacity, not on the cut and sold reports. The amount of timber harvested is sometimes based on the markets and can be affected by outside influences such as the injunctions that have occurred in the last 4 years. The amount of timber enjoined has been corrected and the amount of timber under litigation but not enjoined included. The most recent information available at the time of document printing is included in Appendix A.

Comb-43:

The analysis is based on market conditions at the time of analysis. Statements regarding “foreseeable market conditions” have been removed.

Comb-44:

The analysis supporting the statement “decreases logging costs and conversely increases net stumpage value” is supported by the net stumpage value in the “Timber Economics” section of Chapter 3 and through the NEAT runs for the alternatives which are in the planning record. While the base rates are constant no matter the logging method used, the costs of the logging methods vary and affect the expected bid value. Longer helicopter distances are more expensive than shorter distances because of the costs of fuel, operator time and down time for the chokersetters.

Comb-45:

The current conditions that make Alternative B economical include the selling price of the species, the amount of volume and grade of the species being harvested, the cost of harvest system (helicopter or cable), utilization standards, and the ability to export products. These are also what may make Alternative D uneconomical at this time. Future market conditions are hard to predict and may fluctuate rapidly. The financial efficiency of the alternatives is the best available information and is consistent between alternatives to allow for comparison.

Comb-46:

Letters submitted during the comment period and a copy of the e-mails have been included in this Appendix. For this project, issues from substantially similar letters are grouped, and the Forest Service responds to the issues presented, using the “content analysis” approach. Publishing each letter and e-mail, particularly form letters, would not add to or improve the analysis or the information provided to the public or decision maker.

Appendix D

Every comment received is considered for its substantive comments.

Comb-47:

All documents in the planning record are available from the Ketchikan-Misty Fiords Ranger District. Although not required by law, electronic versions of many of these documents exist and can be provided in that format. In the instances where documents are not available in electronic form, these are noted on the planning record index. Large documents, such as the Forest Plan, are generally included by reference.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 10
 1200 Sixth Avenue
 Seattle, Washington 98101

December 1, 2004

Reply To
 Attn Of: ETPA-088

Ref: 98-040-AFS

Jerry Ingersoll, District Ranger
 Ketchikan/Misty Fiords Ranger District
 Tongass National Forest
 3031 Tongass Avenue
 Ketchikan, Alaska 99901

Dear Mr. Ingersoll:

The U.S. Environmental Protection Agency (EPA) has completed its review of the supplemental draft Environmental Impact Statement (EIS) for the proposed **Emerald Bay Timber Sale** (CEQ EIS No. 040481) in accordance with our authorities and responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The supplemental draft EIS evaluates three (3) action alternatives and the no action option for harvesting timber on the Cleveland Peninsula in the Tongass National Forest. The supplemental draft EIS identifies Alternative B as the agency-preferred alternative.

Based on our review, we have assigned a rating of EC-2 (Environmental Concerns-Insufficient Information) to the supplemental draft EIS. This rating and a summary of our comments will be published in the *Federal Register*. Our concerns, as described below, relate to the range of alternatives evaluated in the EIS as well as the lack of information related to government-to-government consultation with Alaskan Native tribal governments.

A copy of the rating system used in conducting our review is enclosed for your reference.

Range of Alternatives

Overall, our major concern with the supplemental draft EIS relates to the evaluation of a limited range of alternatives. While 3 action alternatives are evaluated in the supplemental draft EIS, 2 of these 3 alternatives are described as being not economically viable under current timber market conditions (and presumably not reasonable alternatives since they would not meet the first element of the stated purpose and need for the project (see page 1-6)). By including these "uneconomic" alternatives in the EIS, it appears that the range of alternatives available for selection by the decision maker has been reduced to a single action option (Alternative B, the preferred alternative). This approach appears to be contrary to the direction of the NEPA implementing regulations which direct Federal agencies to "rigorously explore and objectively evaluate all reasonable alternatives," thereby "sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public" (see 40 CFR 1502.14).

EPA-1

additional) alternatives may be warranted if the Forest Service intends to harvest timber in an "economically efficient manner." The supplemental draft EIS does not demonstrate that there is only one approach available (as defined by Alternative B) to harvest timber from the project area in an economically efficient manner based on the current timber market. It simply shows that of the alternatives evaluated previously, only Alternative B is currently economical. It is unclear from the descriptions provided on page 2-11 whether other alternatives considered but not analyzed in detail would be economically viable. If they would be, we suggest that they receive more detailed evaluation in the EIS to more fully inform the decision maker and the public of reasonable alternatives available for selection along with their associated effects. If these alternatives would not be economically viable, we recommend that the EIS include additional information to support that conclusion.

EPA-2

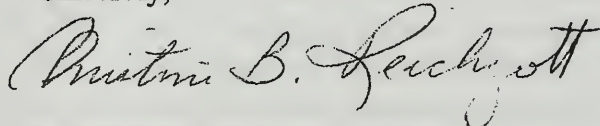
Consultation with Affected Tribes

We were unable to locate information in the EIS that indicates whether the Forest Service has consulted with potentially affected Alaskan Native tribal governments, pursuant to the direction in Executive Order (EO) 13175 (*Consultation and Coordination with Indian Tribal Governments*). We recommend that the Forest Service engage affected tribal governments, pursuant to EO 13175, in the further development of the project/EIS to ensure that Federal government meets its obligation to consult with tribes on a government-to-government basis. Results of such consultations should be reported in the EIS.

EPA-3

Thank you for the opportunity to provide comments on the draft EIS. Please contact Bill Ryan of my staff at (206) 553-8561 at your earliest opportunity to discuss our comments and how they might best be addressed for the project.

Sincerely,



Christine B. Reichgott, Manager
NEPA Review Unit

Enclosure

cc: John Natvig, TEAMS Enterprise

Forest Service Response to the EPA Letter:**EPA-1:**

Timber markets have fluctuated throughout the life of this project. The Proposed Action, Alternative C, was positive when first proposed. Chapters 1 discusses the history of this project. Chapter 2 discusses how the alternatives were developed, which ones were analyzed in detail, and which alternatives were dropped from detailed analysis and why. Although Alternatives C and D display negative bid values at this time, this may not always be the case, especially with Alternative D.

The “Transportation” section of Chapter 3 provides additional analysis of alternative road routes for accessing the project area and their feasibility.

EPA-2:

Because of the relatively small size of the project area and the limits of access by either physical features such as the steep ridges to the north or administrative such as the designation of the OG Habitat LUD, alternatives for this project area are not extensive. The alternatives chosen do represent a range of effects that responds to both issues: Timber Economics, and Roadless and Old-growth Reserve Values. Although Alternative C does show a considerably negative bid value at this time, it does depict the costs of minimizing the effects on the Old-growth Habitat Reserve.

The explanation of Alternatives Eliminated from Detailed Study in Chapter 2 has been expanded to show that many alternatives were explored but were either infeasible or resulted in similar or more adverse effects than the alternatives considered in detail. In addition, the “Transportation” section of Chapter 3 provides additional analysis of alternative road routes for accessing the project area and their feasibility.

EPA-3:

The Final SEIS clarifies that tribal consultation has been accomplished and documentation of these meetings is in the planning record. The Alaskan Native tribal governments are also included on the mailing list for the project and receive all information on the project. The “Public Involvement” of Chapter 1 discloses all public participation opportunities. Subsistence hearings were held and the subsistence hearing records are located in Appendix C of this document.

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